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In the Loop: Infrastructural Landscape in Chicago's Urban Core

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Master of Architecture
May 2007 Graduate

in the **loop**
infrastructural landscape
in chicago's urban core

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INTENT: Transportation facilities are compelling architectural structures because they are not built as a destination but rather as a facilitator towards its inhabitant's destination. People from every background interact through chance encounters within transportation facilities. Because these facilities are not considered destinations their upkeep is often neglected and architectural aesthetic is not always a major concern for their design. This is most likely due to the fact that these structures are often funded by the local or national government and as long as these facilities continue to function at a mediocre pace, authorities find no reason to improve upon it. However these public spaces become part of the fabric

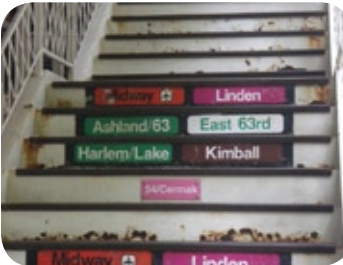
of a city and it would be beneficial for them to function as a more sustainable, efficient, and aesthetically pleasing environment. This statement is more true in Chicago than in most other metropolitan cities due to the fact that the rail system is elevated and its' worn, 115 year old artery is exposed to the public. The *intent* of this project is to explore new ideas for infrastructural architecture and to resolve these ideas into an efficient transit system for the city of Chicago, with specific focus on the Loop. The terminal project will focus upon station and system redesign, and rail technologies while incorporating ideas of adding new modes of transport (i.e. biking, walking) to the elevated system that weaves itself through this very vertical city.

Chicago “ Our quality of life and standard of living are significantly enhanced by our transit network. While demand for transit is up throughout the region, thanks in part to high gas prices, funding for transit has not kept pace.

We are now at a crossroads.

Either we **modernize our transit** network or we shrink it.”

-Joint statement from CTA, RTA, Metra & Pace, Sept. 14, 2006



SITE : I have chosen Chicago's rail system as my site due to its extensive infrastructure within the city and also because it is an elevated system that has become integrated into the fabric of the city's architecture. I travel often to Chicago and although I find the rail system to be a fascinating interlink within the cityscape I am continually struck by the dilapidated nature of many of the stations that are dotted throughout the city. Many of these are historical gems within the city of Chicago and were built in the late 19th and early 20th centuries. Because of lack of funds to update them, many stations have been completely abused by the amount of traffic spilling in and out of them each day. The amount of passengers using the

Chicago Transit Authorities' (CTA) services has diminished through the years; its highest passenger rate was in the 1940's. By making the existing system more aesthetically pleasing and more functional for passengers, I believe that citizens who normally have the luxury of driving their car could possibly be compelled to use the CTA's services and in turn generate more profit for the city, lower traffic and pollution within the city, and also become a more socially cultivated society.

SCHEDULE
1ST SEMESTER

SUMMER	Pre- Semester Independent Study
AUGUST	Weeks 1-3 Prepare Program with more focused intent.
	Weeks 4-7 Research and Analysis
SEPTEMBER	Week 8 Program Research Review Tuesday, Oct. 10th
OCTOBER	Weeks 9-12 Conceptual Design Phase
NOVEMBER	Week 13 Interim Review Thursday, Nov. 16th
	Weeks 14-16 Schematic Design
DECEMBER	Week 17 Faculty Review

SCHEDULE
2ND SEMESTER

JANUARY	Weeks 18-21 Schematic Design
FEBRUARY	Week 22 Interim Review Wednesday, Feb. 7th
	Weeks 23-25 Design Decisions Finalized
MARCH	Weeks 26-28 Final Design Development
	Week 29 Final Review Friday, March 30th
APRIL	Weeks 30-32 Compiling Thesis Book Due: Thursday, Apr. 19th



An **independent study** researching transportation precedents throughout the world was conducted prior to the semesters start. Selection of these sites was based upon their history, efficiency, design, and creative funding. Innovative ideas for funding were important to research in order to give the project validity. The sites chosen include: Portland, Oregon, Denver, Colorado, Washington D.C., New York City, NY, London, England, and Kuala Lumpur, Malaysia. The information was gathered to create a precedent guidebook to be used as a reference during the research and conceptual design phases. Some of the interesting findings that will become relevant in this thesis project include the usage of sustainable designs for stations and the use of advertising and station sponsors to

generate more revenue. While examining precedents I stumbled upon two innovative projects, the Highline, an elevated park system being developed on an abandoned rail line in New York City, and the Visionary Chicago Architecture / Under the El project, which evolved the idea of creating park space below the “L”, by Ross Barney + Jankowski Architects, and these stimulated more ideas. Both of these projects tackle the idea of molding existing infrastructure into landscape. They create pedestrian and leisure spaces amidst the city streets, something that is more often done in Europe than America. These ideas will continue to be explored also.



washington d.c.



BEGINNINGS :

Phase 1 completed in 1976
By 2001 the 103 mile rail network was completed with 86 Metro stations.

Subway: 50.5 miles, 47 stations
Surface: 46.31 miles, 33 stations

POPULATION :

Serves a population of 3.5 million within a 1,500 square mile area.

USAGE :

42% of residents use mass transit amounting to 206 million rides per year. It is the 2nd busiest network in the US behind NYC.

LINES :

5 lines: Blue, Green, Orange, Red, & Yellow

FARES :

Peak hours: \$1.35 minimum, \$3.90 maximum



london



BEGINNINGS :

The London Underground is the world's oldest underground system with service beginning on Jan. 10, 1863. It also has the longest route length in the world. It has grown to 253 miles in total length of lines and serves 274 stations.

POPULATION :

Serves the greater London population of 7.5 million dwellers in an area of 609 sq. miles.

USAGE :

The average daily ridership is 2.67 million passengers reaching approximately 976 million rides per year.

LINES :

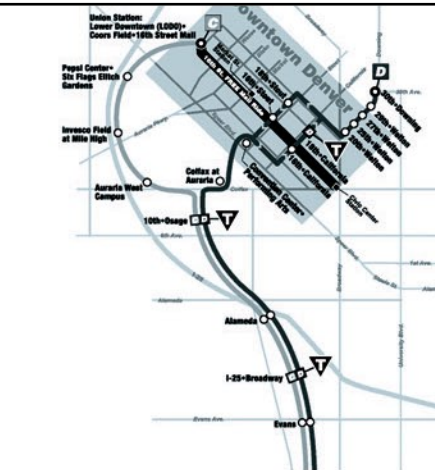
12 lines including: brown, red, yellow, green, orange, pink, silver, purple, black, dark blue, light blue, and teal.

FARES :

Fares vary by zone and increase during peak hours. A single ride fare starts at 1.50 pounds and increases approximately .50pounds per zone.



denver, co



BEGINNINGS :

Light rail was introduced in 1994 & is ongoing. The program RTD FasTracks is a 12-year transportation program to build 119 miles of new transit.

POPULATION :

The metro area consists of 554,636 people within 44.7 square miles.

USAGE :

Serves over 35,000 riders per day. Ridership has increased over 28% in the past 10 years and in 2003 carried over 86 million riders.

LINES :

2 lines with 23 stations.

FARES :

Zones 1 & 2: \$1.50
Zone 3: \$2.75



ny, ny



BEGINNINGS :

Although the first underground line of the subway did not open until October 27, 1904, an existing elevated line had already been operating for about 35 years.

POPULATION :

Serves the surrounding New York City area consisting of approximately 8,168,388 people. There are 852 miles of track with 656 of them attaining revenue.

USAGE :

The average daily ridership is 4,800,000 carrying approximately 1.45 billion passengers per year.

LINES :

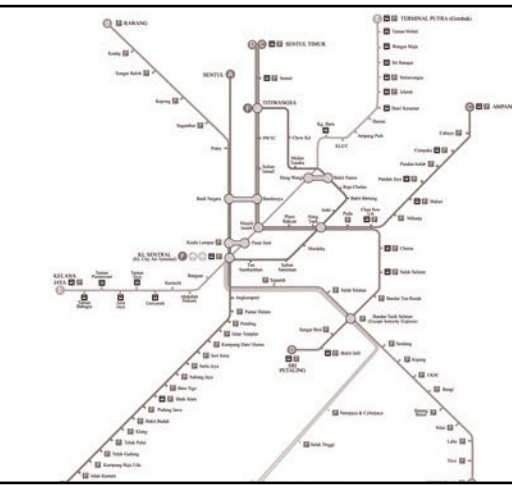
The subway system in NYC operates in a unique way. There are 26 train services in the subway system, with some of these overlapping onto the same line, but offering a different service. They are organized by color, number and by letter.

FARES :

The fare for a single subway ride is \$2.00.



kuala lumpur, malaysia



BEGINNINGS :

During the 1980's Kuala Lumpur was undergoing a chaotic period of construction and it's inhabitants were extremely car dependent. It became necessary to design a mass transit system to ease traffic congestion. During the early 1990's three routes, each operated by different companies began construction.

POPULATION :

The metro area consists of 4,300,000 citizens in an area of 15,543 sq.miles.

USAGE :

RAPID KL transports around 2.1 million passengers per week.

LINES :

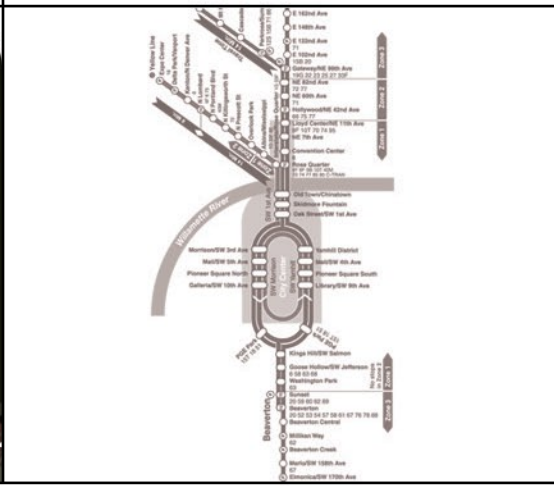
8 different routes servicing 49 stations

FARES :

One way fares range from RM0.70 to RM2.90 (approx. \$0.19 - \$0.79).



portland, or



BEGINNINGS :

Portland has for many years promoted public transit, but it wasn't until 1978 that legislation was passed to begin a light rail system. The system is known as MAX (Metropolitan Area Express).

POPULATION :

The surrounding metro area consists of 2,127,881 citizens and TriMet (the local governing transportation organization) serves 575 sq. miles of the tri-county area.

USAGE :

An average of 97,000 people use MAX every day or 31.9 million people per year.

LINES :

3 routes (red, yellow, and blue) serve the surrounding community and service 64 stations. Soon to begin construction is a fourth line, the I-205/Portland Mall light rail.

FARES :

Fares range from \$1.60 to \$1.95 depending on which zones one is travelling within.

INFRASTRUCTURE AND
PUBLIC SPACE

"In popular culture, the instruments and spaces of mobility have provided new sites of collective life. A real challenge to urban design is to accept that infrastructure is as important to the vitality and experience of the contemporary metropolis as the town hall or square once was. As we move into the twenty-first century, one of the primary roles of urban design will be the reworking of movement corridors as new vessels of collective life."

-Alex Wall Programming the Urban Surface, pg. 247

Although no real precedent exists to guide me through my idea of interweaving public landscape with transit oriented infrastructure, there are several precedents I used to foster design ideas. These projects mostly deal with pre-existing transit structures which have been abandoned and have since been reclaimed as public space.

COPENHAGEN, DENMARK [PEDESTRIAN ZONES]

When the first pedestrian street, Stroget, was inaugurated in 1962, a total of 15.8 meters squared were set aside for pedestrians. The initiative has proven so strong and as such a welcome to the Danish that it has been greatly extended upon. By 1996, Copenhagen had increased the total area of car-free streets and squares to 95.7 meters squared = **6 times more space for public activities.**



BRIDGE OF FLOWERS, SHELBURNE FALLS, MA

This 400 foot stone bridge over the Deerfield River was built in 1908 to carry freight and passenger trolleys. Abandoned in 1928 as a trolley bridge, the Bridge of Flowers was saved from demolition the following year by the Shelburne Falls Women's Club. The bridge was then converted into a linear garden, on which more than 500 varieties of flowers, vines and shrubs are maintained between April and October.



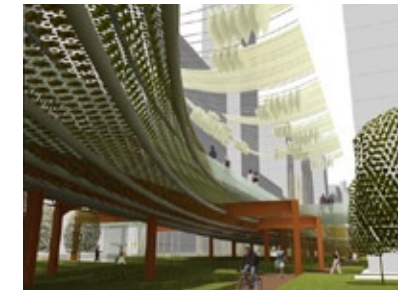
THE HIGHLINE, NEW YORK CITY, NY

Currently under construction, this project consists of the revitalization and retrofitting of a 1.5 mile abandoned elevated rail line in the west side of Manhattan. The goal of this new open space is to “bring new customers to the district, boosting its reputation as a world-renowned destination for cultural institutions, art galleries, technologically advanced businesses, restaurants, entertainment venues, and new residences.” It will provide city goer's with a serene escape in the midst of the city streets.



VISIONARY CHICAGO ARCHITECTURE, UNDER THE EL

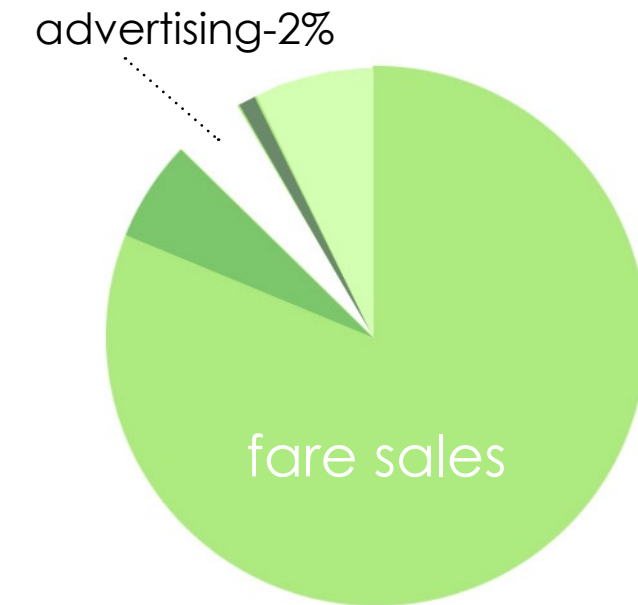
This project was an innovative proposal from Ross Barney Jankowski to provide more public space within downtown Chicago. Their approach was to close the streets below the ‘el’ and create pedestrian thoroughfares within an urban park setting.





ADVERTISING AS A METHOD OF REVENUE

EXISTING CHICAGO 'EL' ADVERTISING



revenue chart

The existing advertising seems to be as dated as the stations themselves. New ideas should be explored as to how revenue can be increased through advertising and how this can be done in an architecturally pleasing way.

-Contractor: Viacom Outdoor

-2004 revenue from advertising: \$20,000,000

IDEAS / PRECEDENTS

chicago, abc studios



times square, new york city, ny



ADVERTISING PRECEDENT:
Kuala Lumpur, Malaysia



JC DECAUX

JC Decaux is an international media and communications company. They were founded in 1964 with their invention of the bus shelter funded by advertising. They are now the world leader in outdoor advertising.

Kuala Lumpar followed this example when designing their transit system. By using the stations and the structure of the system, they created an innovative advertising approach.

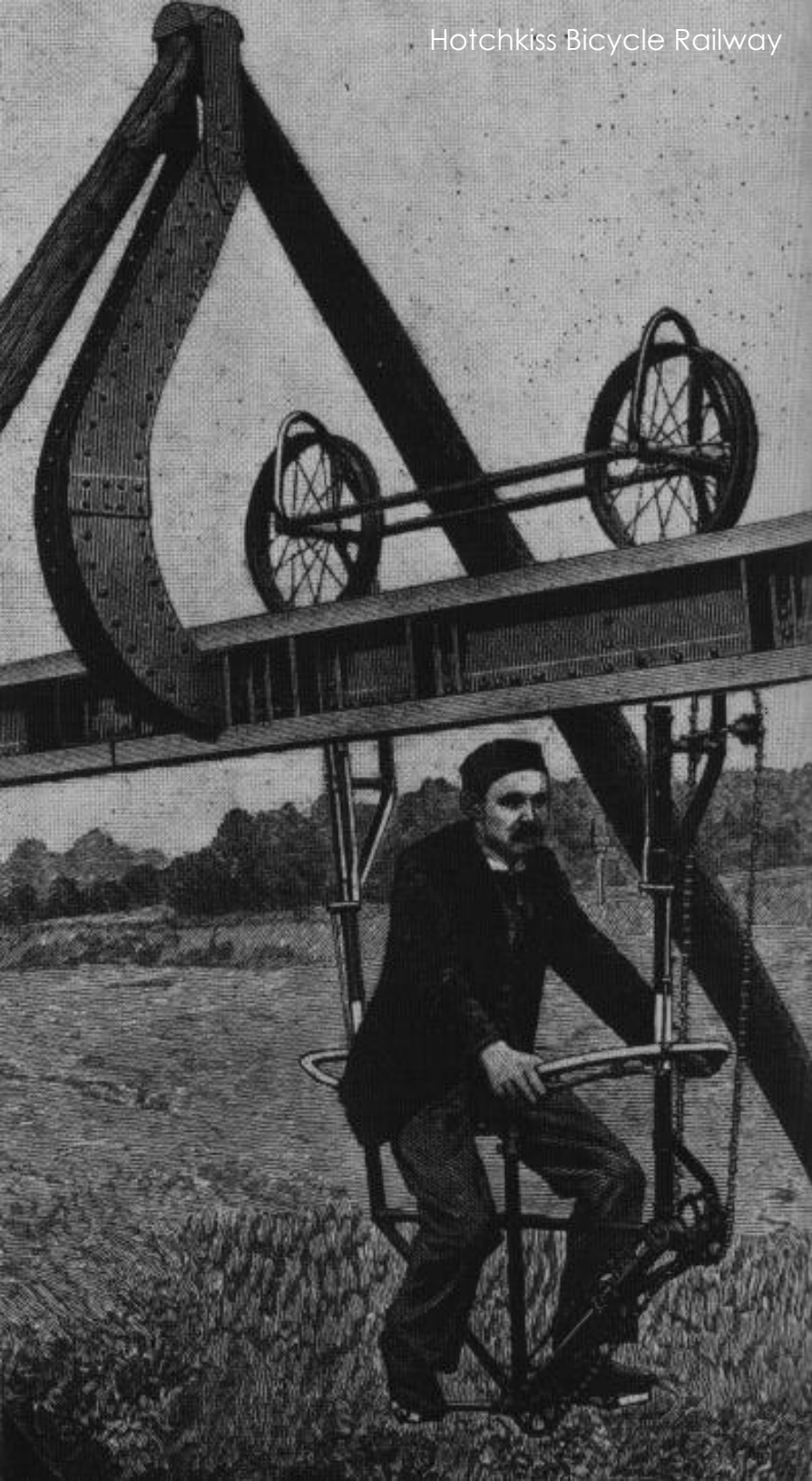
To give my project some financial viability I hope to utilize this idea within my project in a more innovative way. The most common problem for transit failure is lack of funding. By retaining businesses to advertise upon the structure, the system can gain revenue and therefore be more sustainable.



ADVERTISING MATERIAL ANALYSIS ADVANTAGES AND DISADVANTAGES

	<div>LED</div> <div>LIGHT EMITTING DIODE</div>	<div>ADVANTAGES :</div> <ul style="list-style-type: none">-emit light of an intended color without the use of color filters that traditional lighting methods require. This is more efficient and can lower initial costs.-their solid package can be designed to focus its light.-when used in applications where dimming is required, LEDs do not change their colour tint as the current passing through them is lowered-built inside solid cases that protect them, unlike incandescent and discharge sources, making them extremely durable.-have an extremely long life span: upwards of 100,000 hours.-light up very quickly. A typical red indicator LED will achieve full brightness in microseconds; LEDs used in communications devices can have even faster response times.	<div>DISADVANTAGES :</div> <ul style="list-style-type: none">-currently more expensive, price per lumen, than more conventional lighting technologies. The additional expense partially stems from the relatively low lumen output and the drive circuitry and power supplies needed.-performance largely depends on the ambient temperature of the operating environment. "Driving" an LED "hard" in high ambient temperatures may result in overheating of the LED package, eventually leading to device failure. Adequate heat-sinking is required to maintain long life.-require complex power supply setups to be efficiently driven.-typically cast light in one direction at a narrow angle
	<div>MAG INK</div> <div>DIGITAL INK</div>	<div>ADVANTAGES :</div> <ul style="list-style-type: none">-high resolution, high contrast, superior color depth and uniformity, full motion and wide viewing angles.-utilizes ambient light to enhance the image visibility and quality, just like paper.-built specifically for exceptional performance in extreme outdoor environments.-modular design ensures easy assembly-low setup and installation costs, low power consumption, low operation and maintenance costs and unmatched life-time expectancy.-uses an environmentally-friendly, non-toxic proprietary digital ink formula, saving paper and energy.-"Wallpaper and tabletops are both surfaces that magink can do. We can activate any surface around us."	<div>DISADVANTAGES :</div> <ul style="list-style-type: none">-magink can only produce boards as large as 20 ft. wide by 10 ft. high-it requires several smaller boards to be attached together in a way that makes them look like a group of files.-has yet to be tested for profitability
	<div>THIN FILM</div> <div>TECHNOLOGY</div>	<div>ADVANTAGES :</div> <ul style="list-style-type: none">-ceramic thin films are in wide use. The relatively high hardness and inertness of ceramic materials make this type of thin coating of interest for protection of substrate materials against corrosion, oxidation and wear. In particular, the use of such coatings on cutting tools may extend the life of these items by several orders of magnitude.-thin-film technologies are also being developed as a means of substantially reducing the cost of photovoltaic (PV) systems. The rationale for this is that thin-film modules are expected to be cheaper to manufacture owing to their reduced material costs, energy costs, handling cost and capital costs.	<div>DISADVANTAGES :</div> <ul style="list-style-type: none">-thin films have had to be developed using new semiconductor materials, including amorphous silicon, copper indium diselenide, cadmium telluride and film crystalline silicon. In all cases, these technologies face major technical and financial hurdles.-the engineering of thin films is complicated by the fact that their physics is in some cases not well understood. In particular, the problem of dewetting may be hard to solve, as there is ongoing debate and research into some processes by which this may occur.

Hotchkiss Bicycle Railway

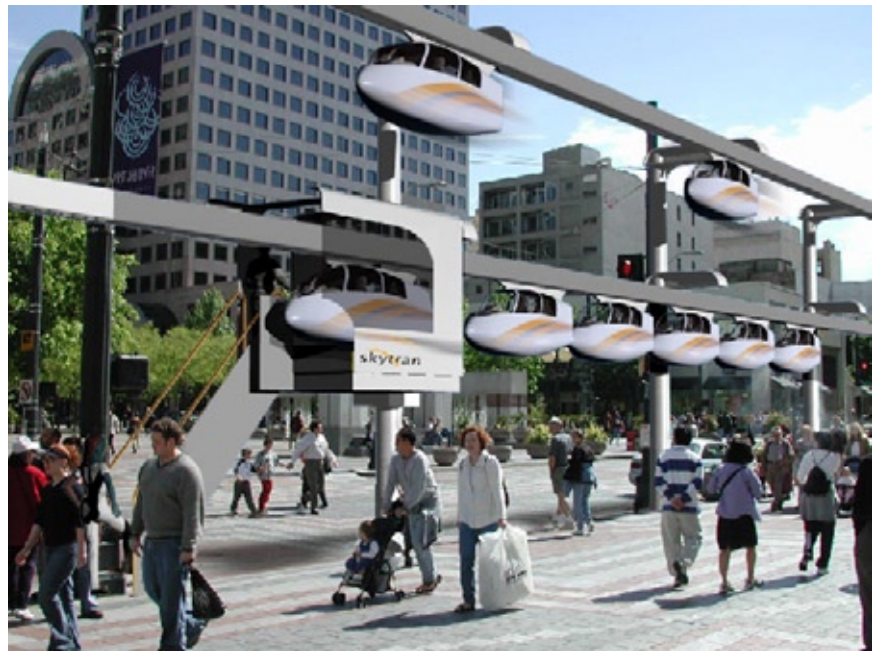


SUSPENDED RAIL TECHNOLOGY

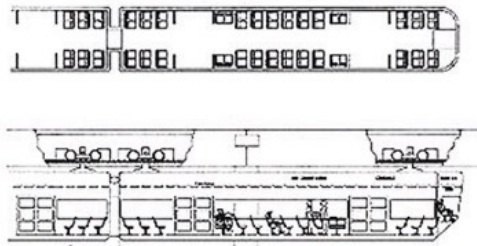
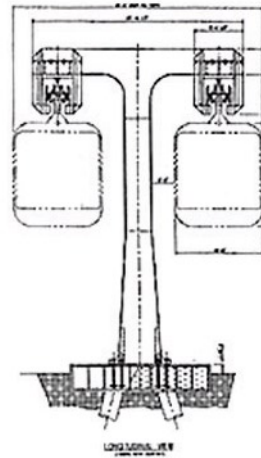
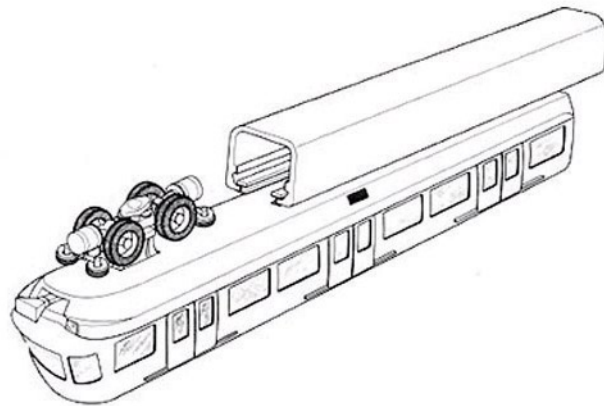


Wuppertal, Germany Schwebebahn

SUSPENDED RAIL EXAMPLES
AND CONCEPTS



SUSPENDED RAIL
TECHNOLOGY



Investigation into various rail technologies led to the conclusion of using a suspended rail system for my project. The reasons are as follows:

Suspended rails receive less weather impacts which benefits the system by having lower maintenance costs.

Platform above suspension allows for public space which is uninhibited by the rail below.

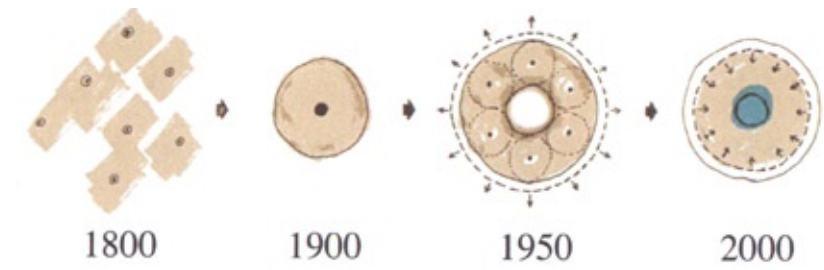
Rubber tires will help to eliminate the noise caused by the current system.

REPORT

RESEARCH



The city of Chicago is experiencing an influx in it's urban areas and is undergoing a process of regeneration. The urban core has become a very vital place. Currently the Loop is experiencing a great amount of renewal, due in part to the many renovations of historic buildings and new construction in the area. This is being instigated by the greater amount of businesses calling the Loop their home and also to the increase in residents, especially in the student demographic. Millenium park has brought a greater amount of tourism to the area also, which would increase even more if the 2016 Olympics are chosen to be held just down the street. Many people have expressed concern for the transit system that exists and it shows in the ridership statistics. Improving this could provide much more than just urban transit, but also new public space for the residents, tourists, and workers of the area to explore. After researching the deterioration, I have chosen to completely renew the system, keeping it elevated as a semblance to the prior system and also because it provides an interesting vantage point of Chicago. The following research and analysis guided the design and program.



1800: Integration of working and living in countryside
1900: Seperation of working and living
1950: Further seperation of working and living
2000: Re-integration of working and living in the city center

HOTELS AND CONVENTION FACILITIES

-Approximately 12,249 hotel rooms in the Chicago Loop vicinity. An additional 1,112 will be added by 2009.



ENTERTAINMENT / CULTURAL FACILITIES

-24,105 theatre seats in the Loop vicinity

-Broadway in Chicago sold 1.3 million seats in its four Loop venues.

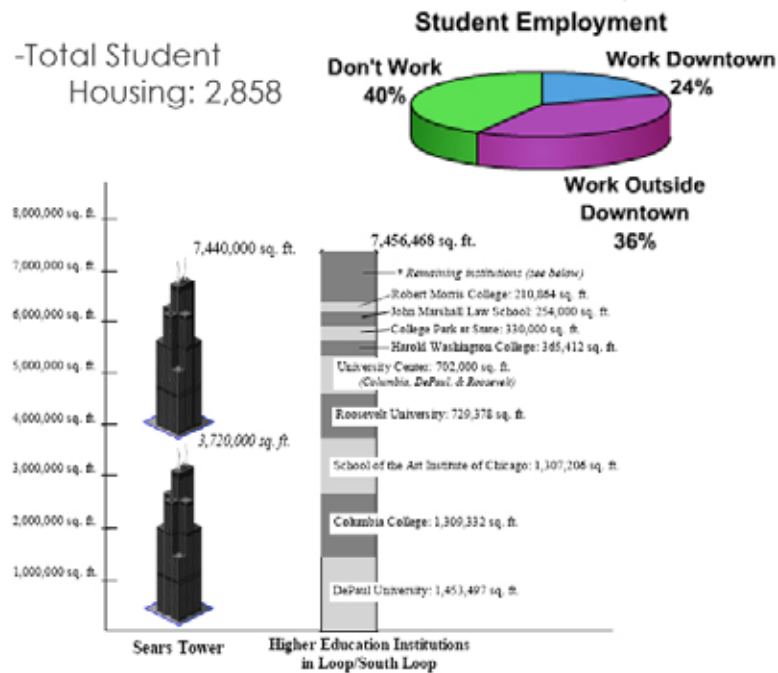


HIGHER EDUCATION INSTITUTIONS

-Chicago Loop is "largest college town" in Illinois with a total head count of 53,859.

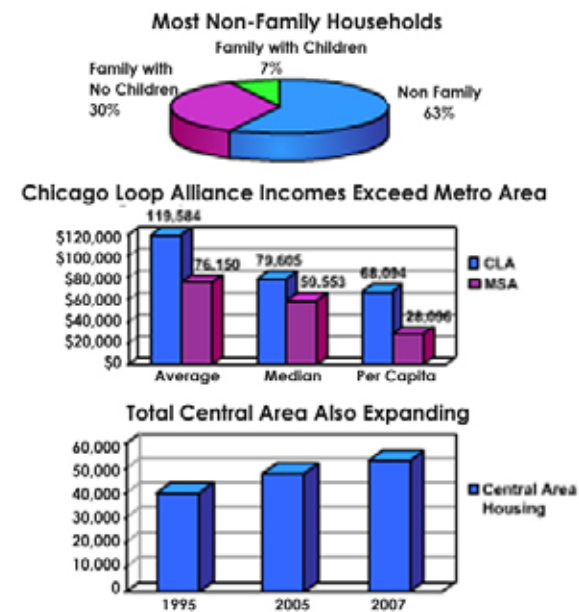
-24 Institutes or Universities within the Loop area

-Total Student Housing: 2,858



HOUSING

-Over 13,000 people live in the Chicago Loop Area, including a total student housing of 2,858.



RETAIL

-2,282,000 square feet of retail in the Chicago Loop area.



Office Worker Estimated Annual Expenditure

-Based on 670,000 Central Area Workers

- Lunches: \$89.3 million
- Shoppers Convenience Goods: \$99.7 million
- Dinner / Drinks: \$14.3 million

OFFICE MARKET

-Loop represents 28.6% of Central Area Office Market

-101,355 of the 670,000 total downtown employees are working in the Loop



PUBLIC SPACE IN CHICAGO

DANIEL BURNHAM MAYOR RICHARD M. DALY
FREDERICK LAW OLMSTEAD

Olmstead brought ideas of public spaces and landscapes to Chicago in the late 19th Century and Burnham carried them on into the 20th century.

The 1909 Comprehensive Plan created by Burnham called for new green spaces and reclamation of the lake front.

As mayor for the past 17 years, he has brought environmental issues to the forefront in urban planning.

During his time in office:

- 400,000 trees have been planted
- 100 campus parks created
- 68 miles of landscaped street medians have been constructed.

In the late 1990's he spurred the growth of green roofs after having one constructed on the roof of city hall.

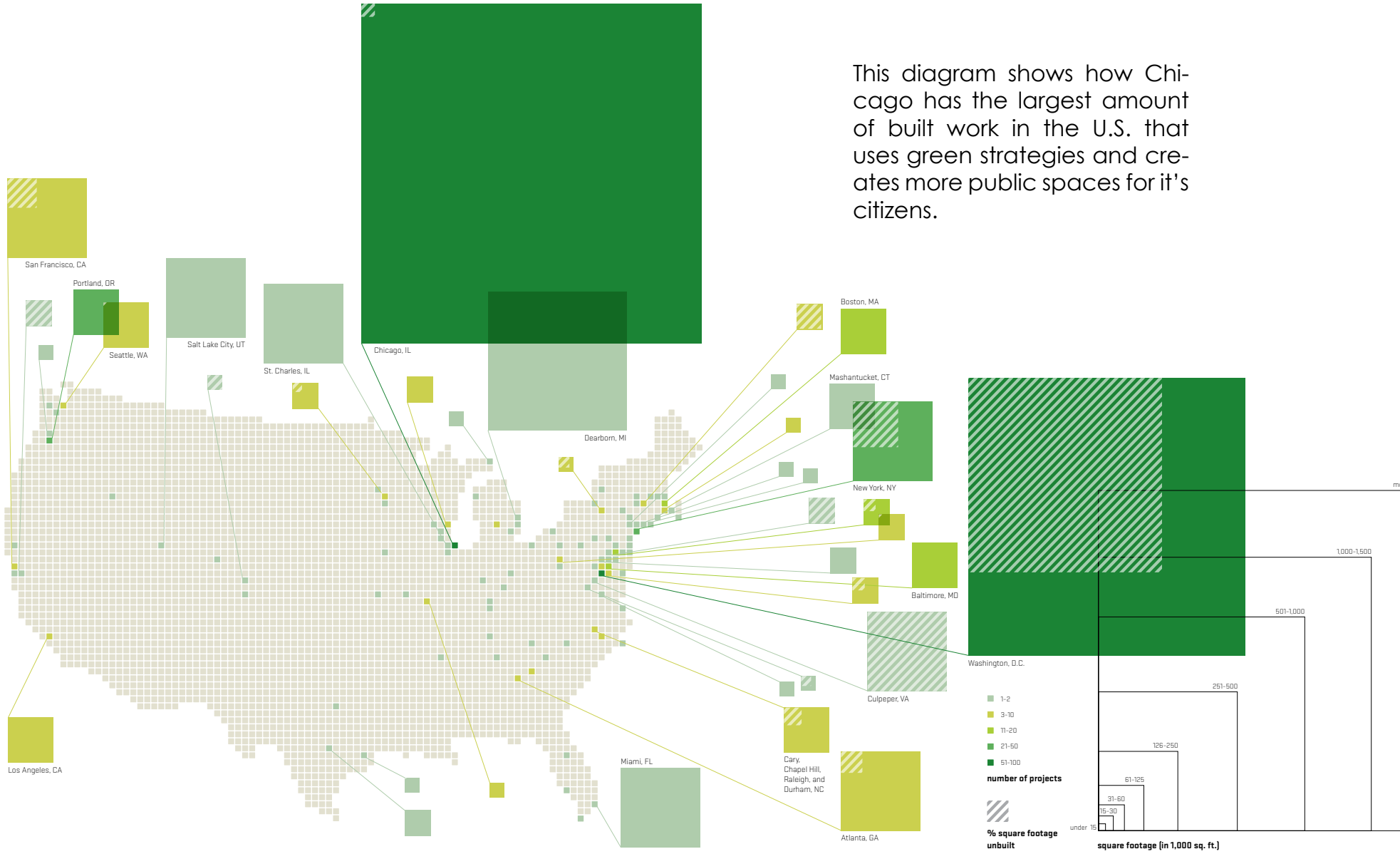
In 2004 Millenium Park was finished, linking the Loop to the shore line.



City Hall



Millenium Park





CHICAGO AERIAL

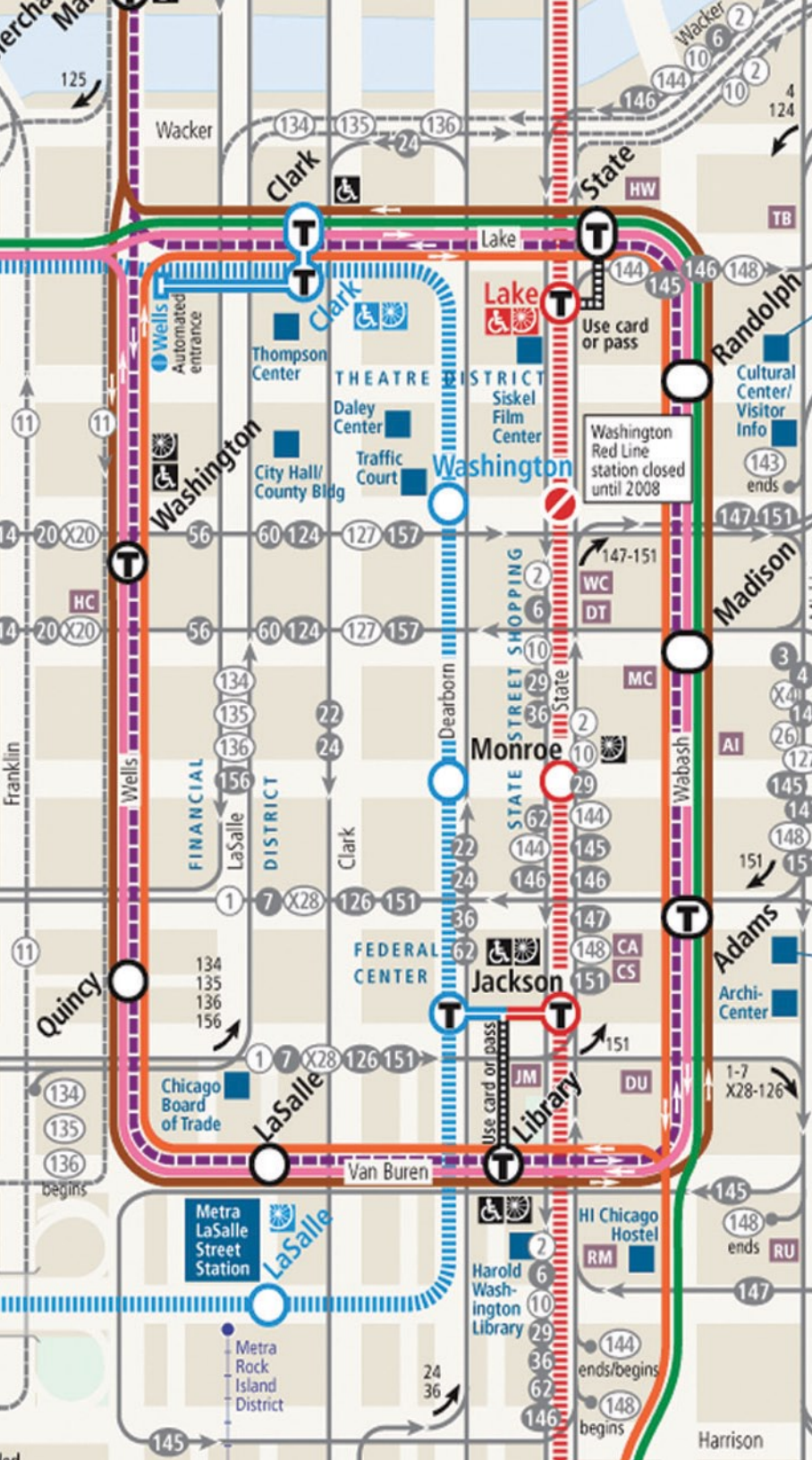


CTA COVERAGE



NEIGHBORHOODS



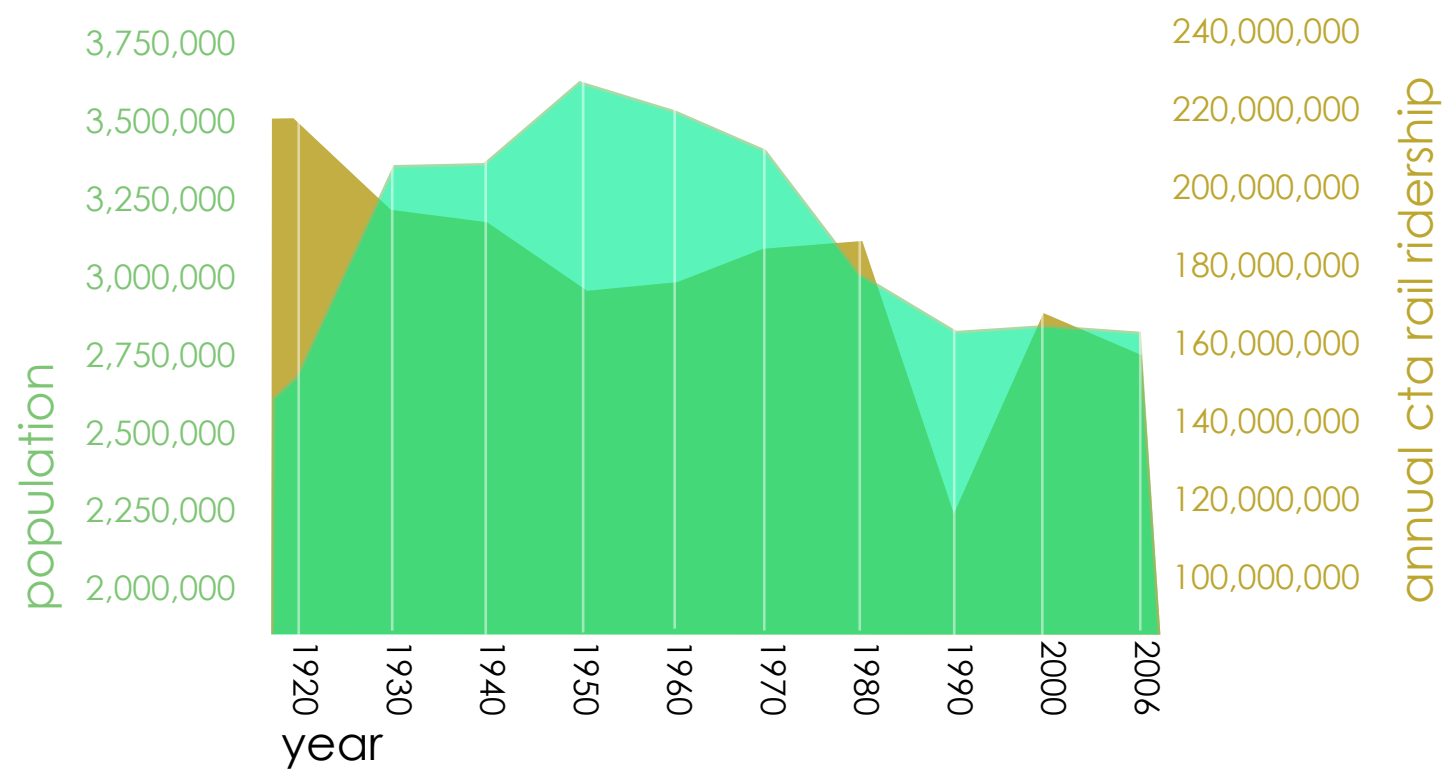


"The need for a common terminal in downtown serving all the elevated lines was finally realized in the 1890's by Charles Tyson Yerkes. He convinced store owners to sign consent forms allowing construction of the overhead structures on their streets. Though it was difficult Yerkes managed to coordinate it all. As can be imagined from its piecemeal obtaining of leases, the Union Loop opened in pieces, starting in 1895 with the Lake Street "L" making the first full circuit in 1897.

As can be imagined, the Loop offered the citizens of Chicago advantages they'd never even remotely had access to before. Workers, shoppers and cross-town travelers could now be deposited directly into the central business district or change to another line's train without walking anywhere. There were also direct entrances to various buildings, most notably the Carson Pirie Scott & Company's department store. The public was quick to take advantage of the new facilities, as all companies had significant ridership gains after the Loop's completion. The Metropolitan's, for instance, went from 40,000 to 60,000." -Chicago-L Org.

Brown, Green, Orange, Pink, and Purple Line express trains serve downtown Chicago via the Loop elevated. The Loop forms a rectangle roughly 0.4 miles long east-to-west and 0.6 miles long north-to-south. The Loop's stations average 64,800 weekday boardings.

THE LOOP & THE 'EL'



Graph comparing the urban population of Chicago with the annual ridership of the Chicago Transit Authority's Rail system. The lowest points in ridership are correlated with the rise of the automobile and a lack of funding.

t h e f a c t s :

congestion:

-3rd most congested city in America.

-73% of the freeway and street lanes are congested during rush hour compared to 42% in 1982.

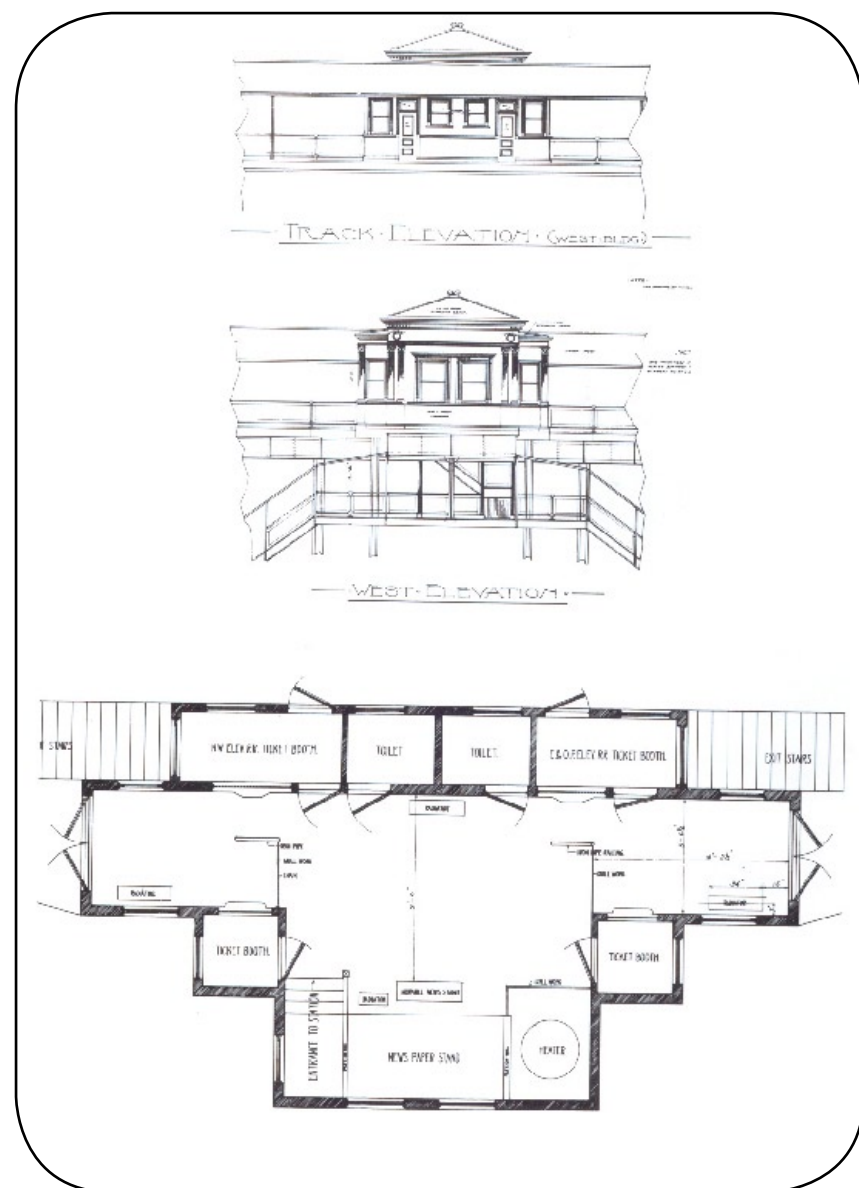
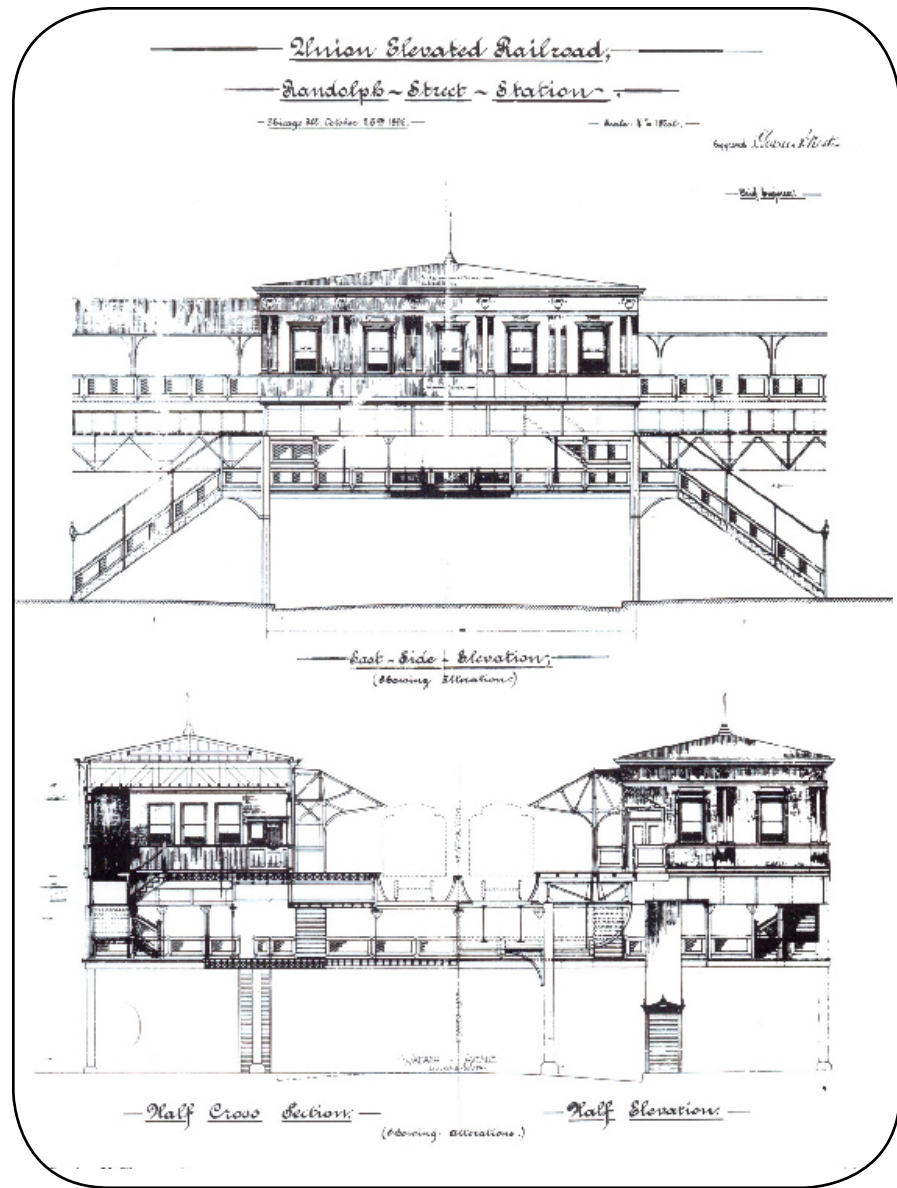
wasted resources:

-340 million gallons of gas annually are wasted on congestion, 5 times more than in 1982.

air pollution:

-the region has become a severe non-attainment area for ozone and has some of the nation's worst air pollution.





Original 1896 plans and elevations of loop stations



1908



2006

View looking north on Wabash St.

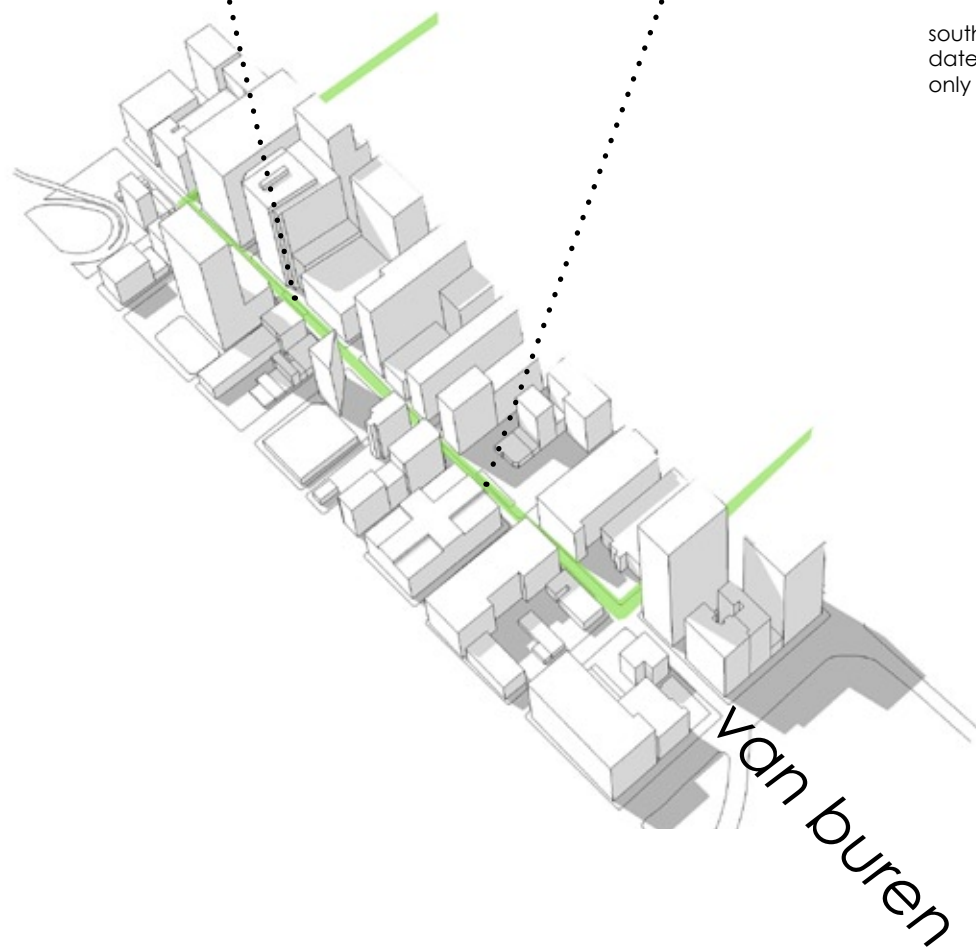
WHAT EXISTS



la salle/van buren
●●●●●
built:1897
last on south loop
to retain original
station house



library-state/van buren
●●●●●
rebuilt in 1997
south loop consoli-
dated 3 stations to
only 2



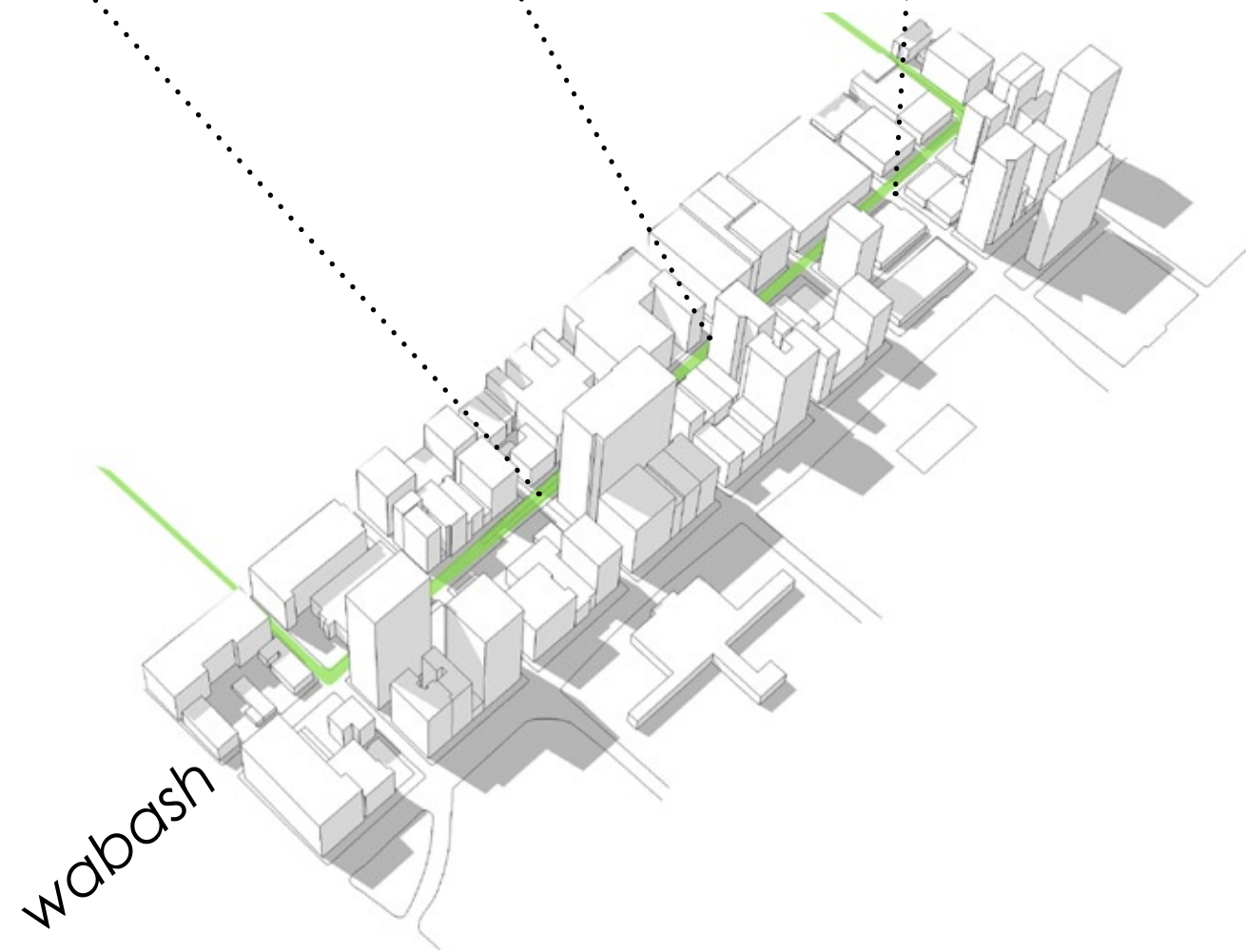
adams/wabash
●●●●●
rebuilt in 1988

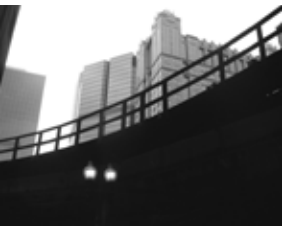


madison/wabash
●●●●●
ENDANGERED
last on east loop to
retain original sta-
tion house



randolph/wabash
●●●●●
ENDANGERED
rebuilt in 1957





clark/lake

● ● ● ● ● ●
built in 1992 and connects with subway lines in the James R. Thompson Center making it the 3rd most trafficked transit location in Chicago.



state/lake

● ● ● ● ● ●
ENDANGERED
built in 1895
the facade was modernized in 1968



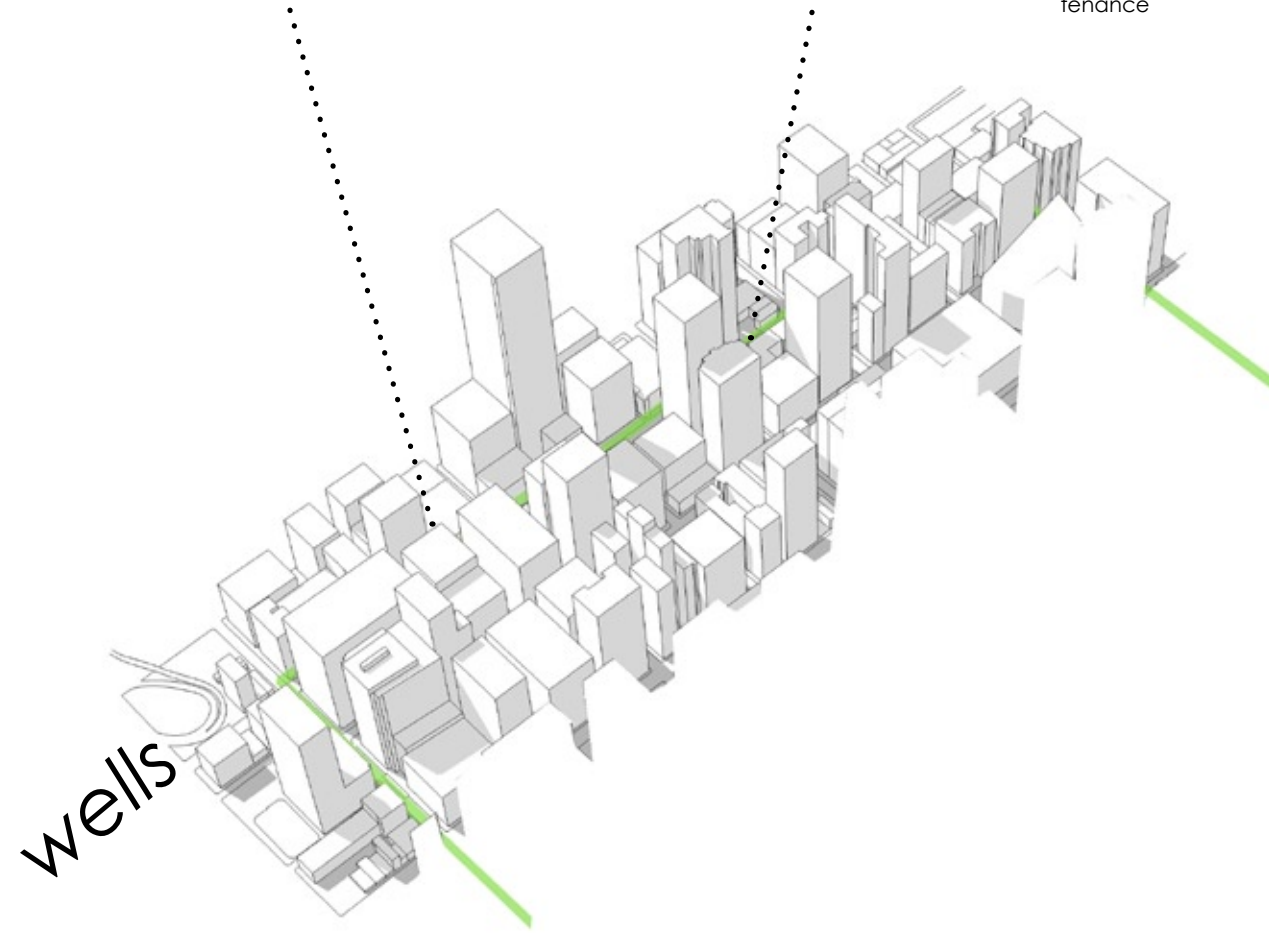
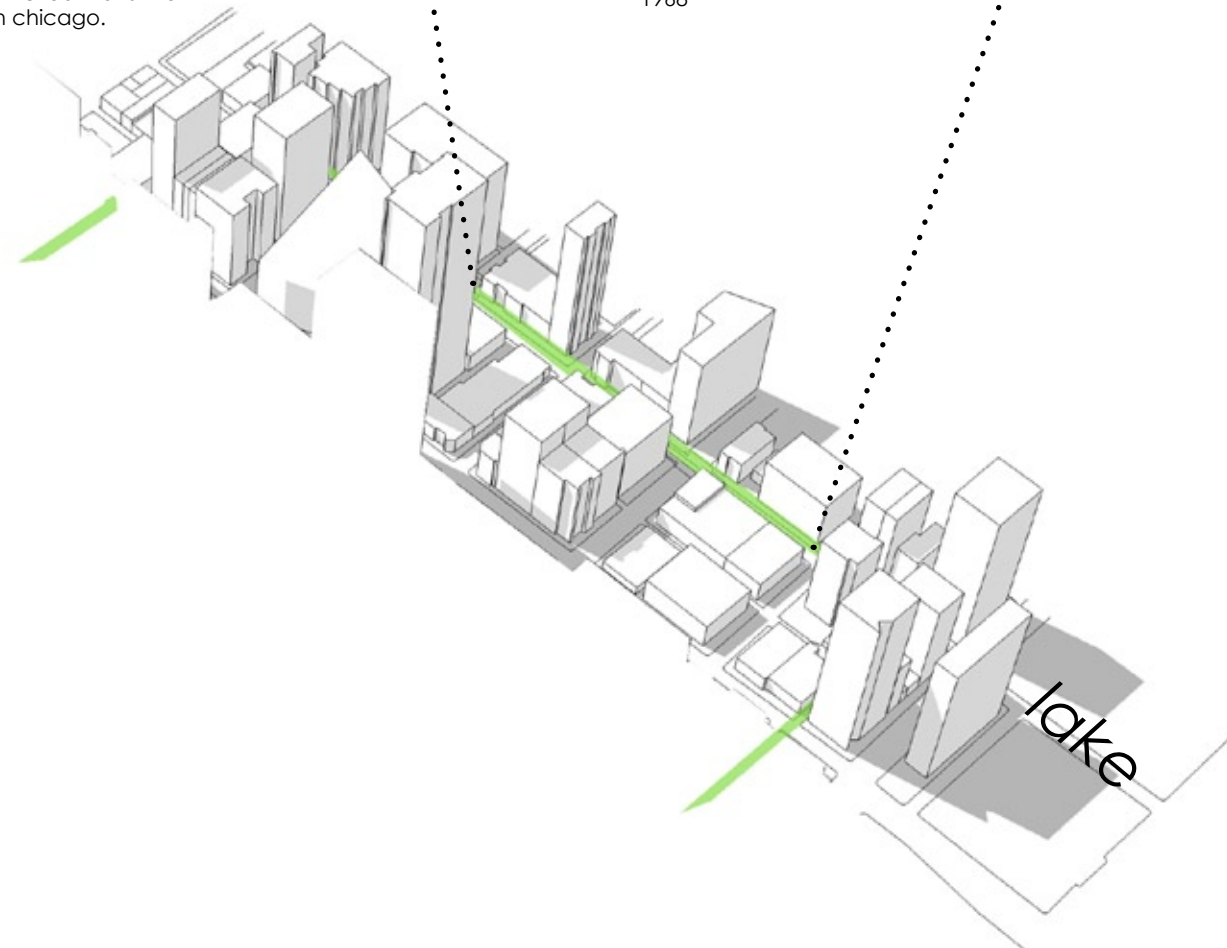
quincy

● ● ● ● ● ●
built:1897
restored :1988



washington/wells

● ● ● ● ● ●
built in 1995
as a consolidation of two stations to cut back on maintenance

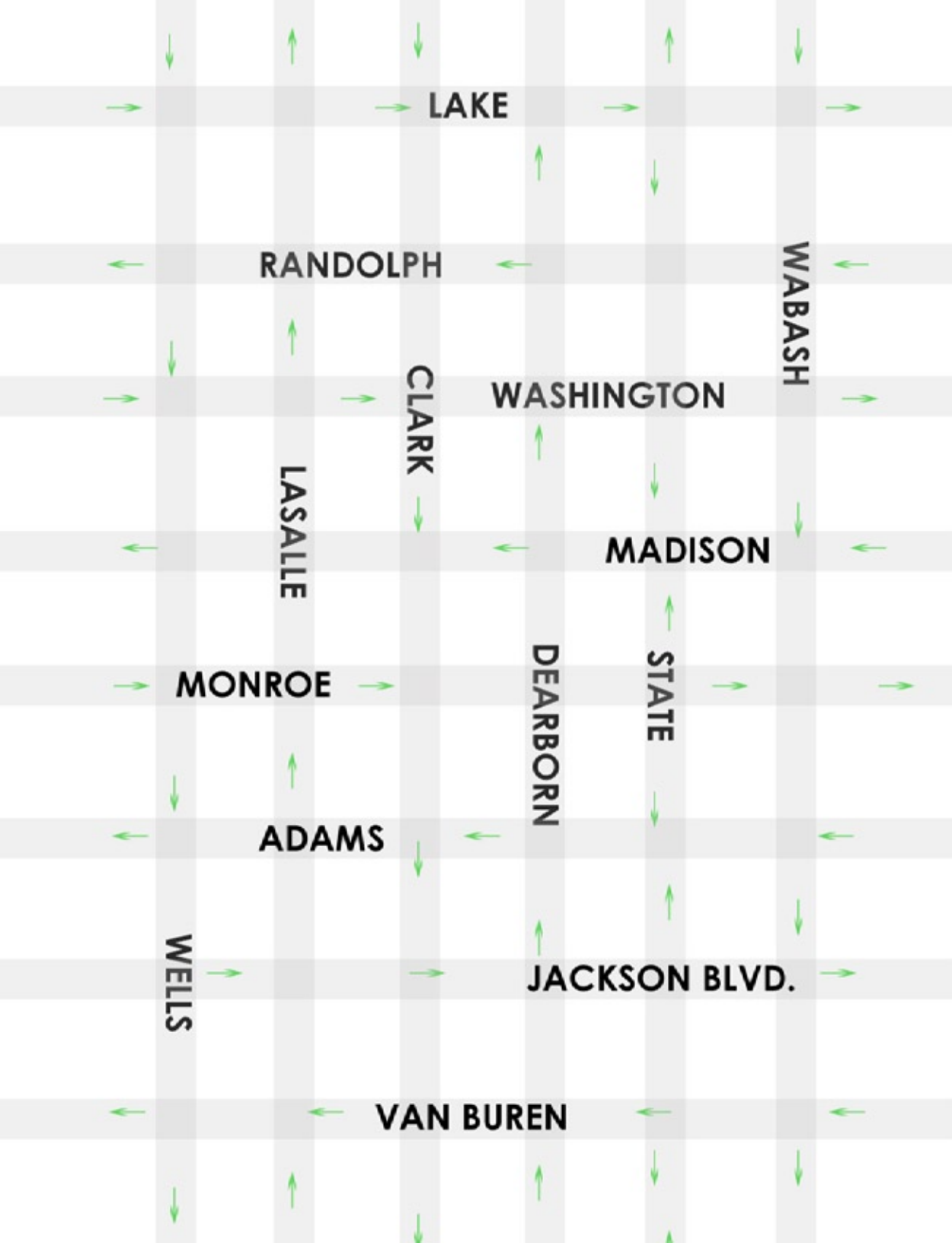


SITE ANALYSIS

EXISTING LOOP BOUNDARIES

The site is bound by Wells Street and Wabash Street running north to south and Lake Street and Van Buren Street running east to west.



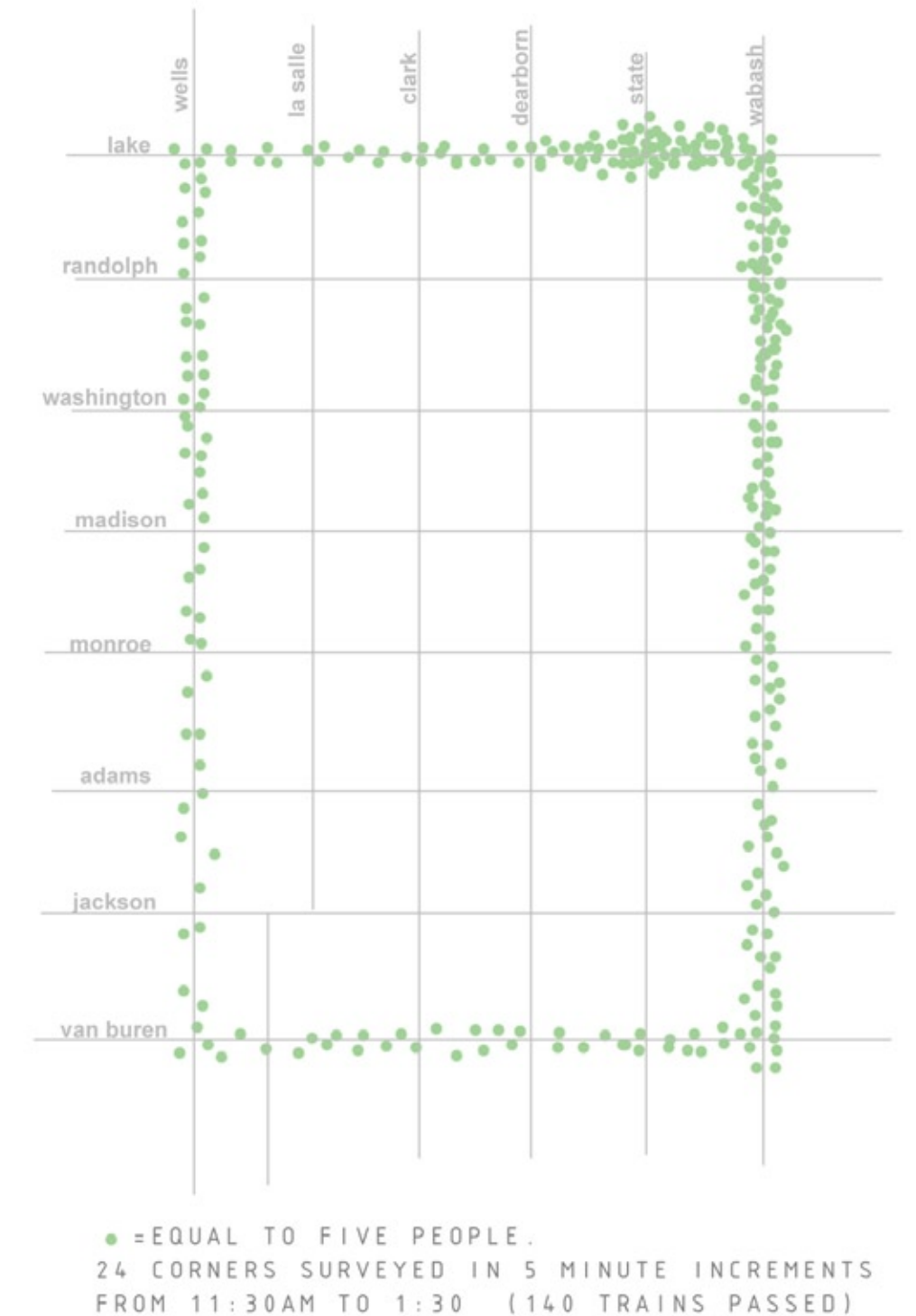


STREET TRAFFIC CONDITIONS

The intention of this project did not initially consider closing the automobile trafficways, however, as design progressed parts of this grid were dismantled. This created pedestrian thoroughfares and public space on the ground level.

PEDESTRIAN TRAFFIC DIAGRAM

This diagram depicts the amount of pedestrian traffic within the Loop. Lake and Wabash Streets retain the most amount of pedestrians due to the amount of tourists in the area who use this route to also head north up Michigan Ave. State Street also filters much of this traffic due to the amount of retail and entertainment venues on the street.



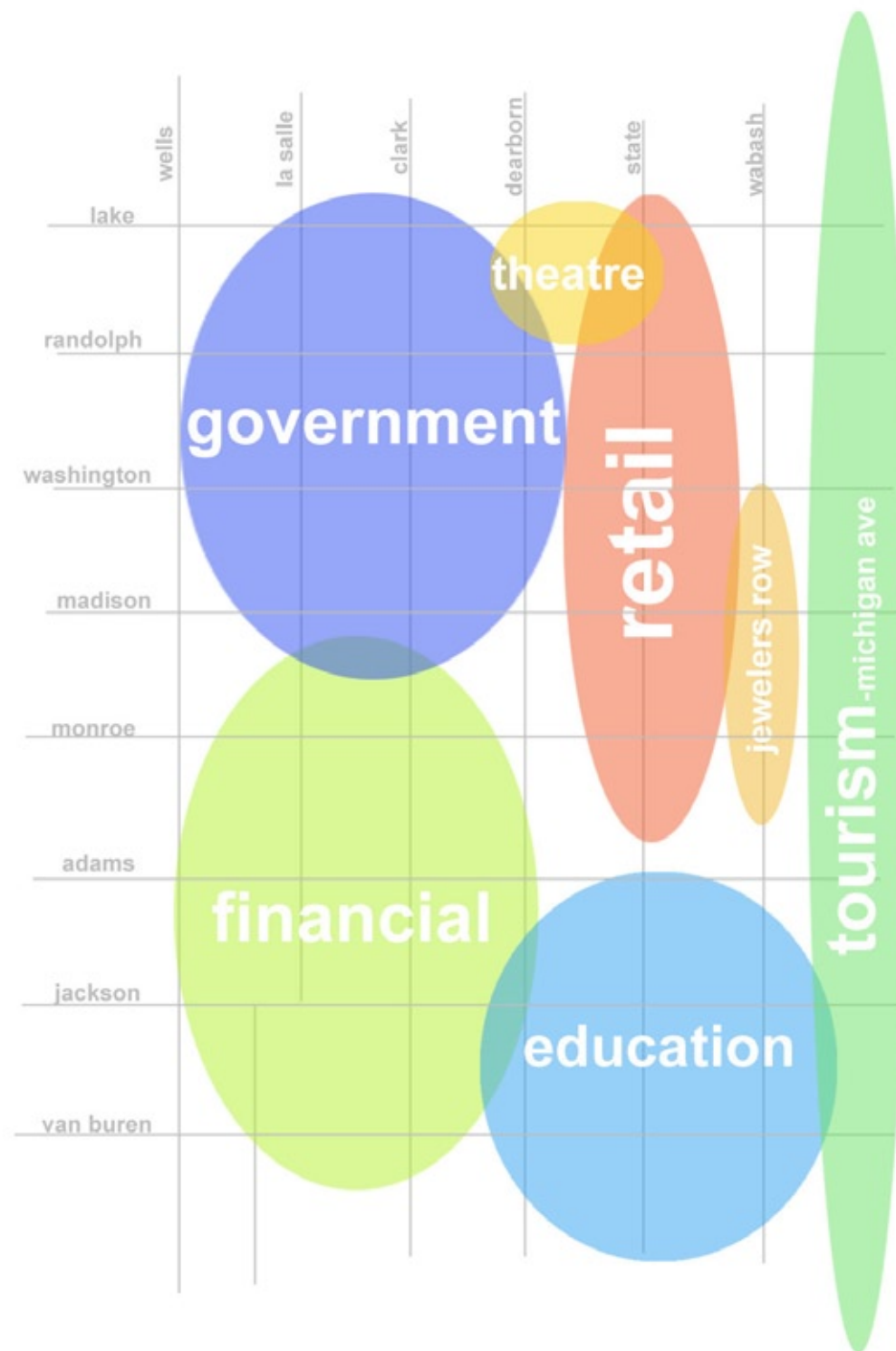


DIAGRAM OF ECONOMIC ZONES

Although the site is very dense the program within it varies quite a bit. When moving through the site, these zones become quite distinct and obvious. With Millenium Park and Michigan Ave. to the east of the site, there is a great amount of tourism and retail. Moving to the north-western part of the site, one will find more focus on government, with City Hall and the Thompsen Center. To the South-west is the Financial Board of Trade.

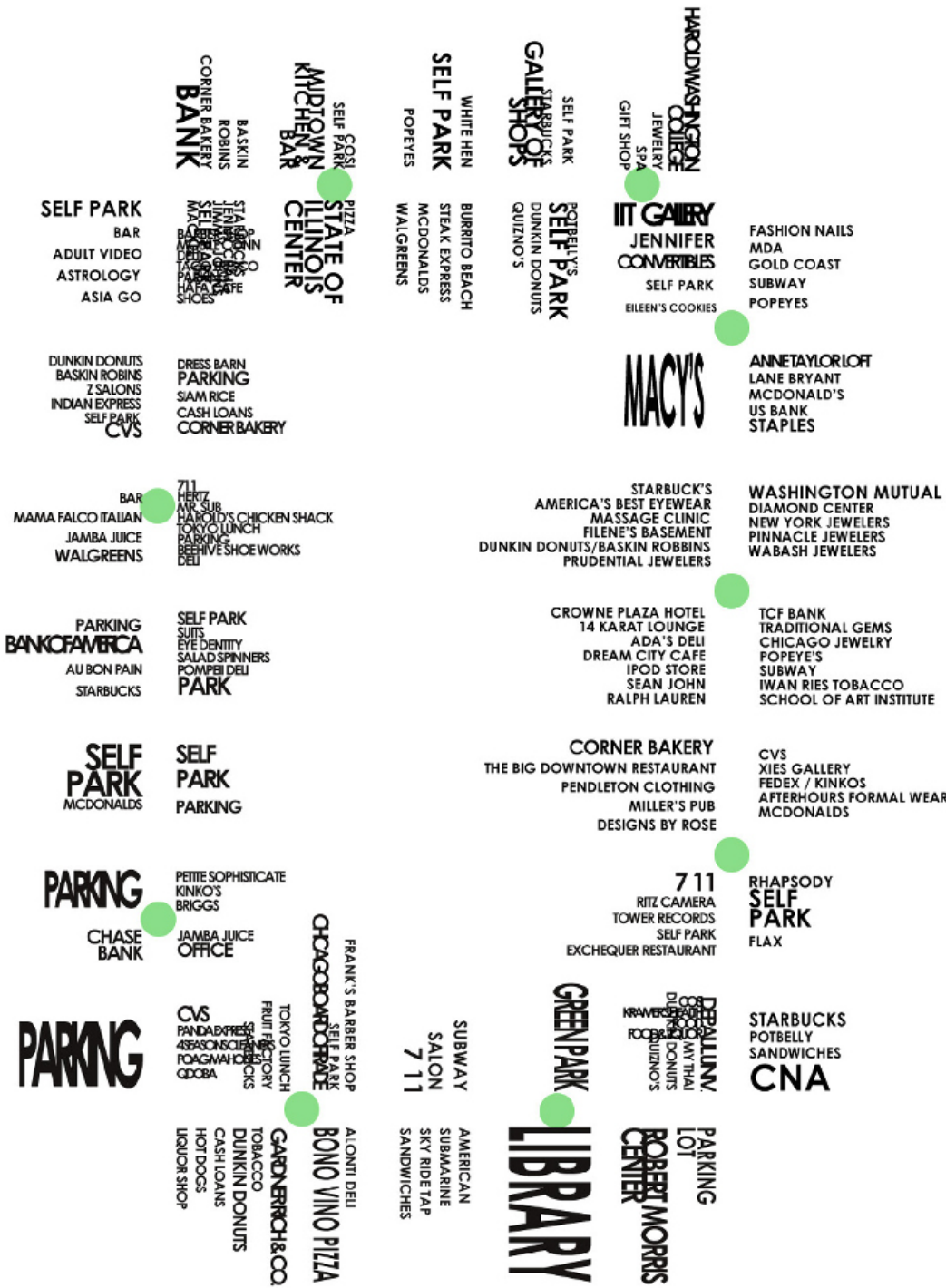
BUILDING PROGRAM DIAGRAM

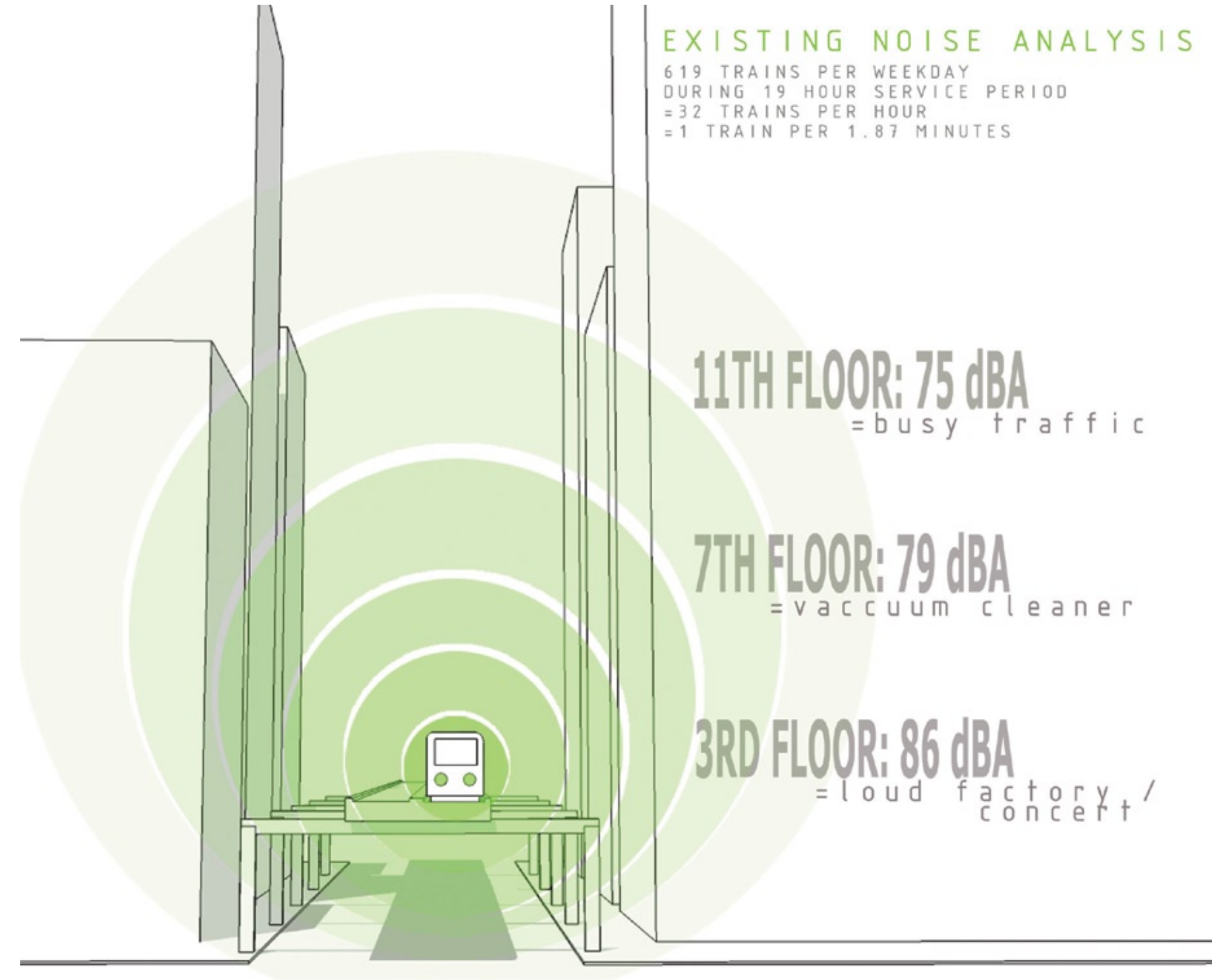
This diagram takes the economic zones to the next level of investigation. The buildings depict: housing, culture and entertainment, educational facilities, hospitality, parking, fitness or recreation, financial, and government programs. Later in the design process, this diagram becomes very important in deciding as to which buildings might be candidates for connecting to my new system.



This diagram further depicts the sort of program and retail within the Loop specifically on the ground level. These are the venues that a passerby is able to understand exists without having to enter a building. The green dots represent current stations.

This illustrates the various materials used within the site. Because the eastern portion of the site is the oldest portion of the urban city, with many important architectural works from Daniel Burnham and Louis Sullivan, the materials tend to be of brick. As one moves to the west there is a transition to glass, steel and concrete mega-structures.

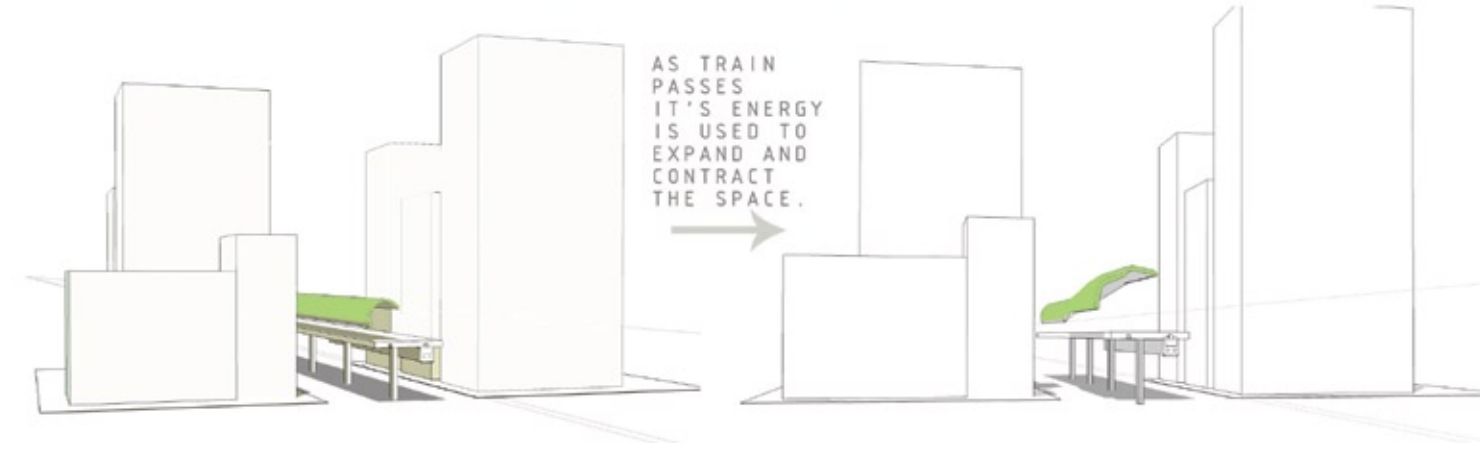




POSSIBILITIES

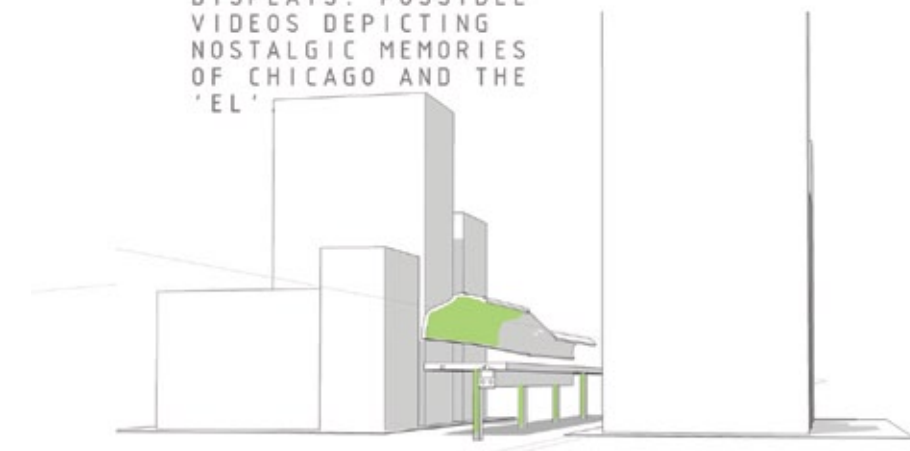
The existing noise analysis displays how the Loop is in a constant flux and encounters changes within the environment. How can this flux be integrated with the design to create a new change that constantly happens within the environment without the extreme distraction of the rail noise?

SPATIAL CHANGE



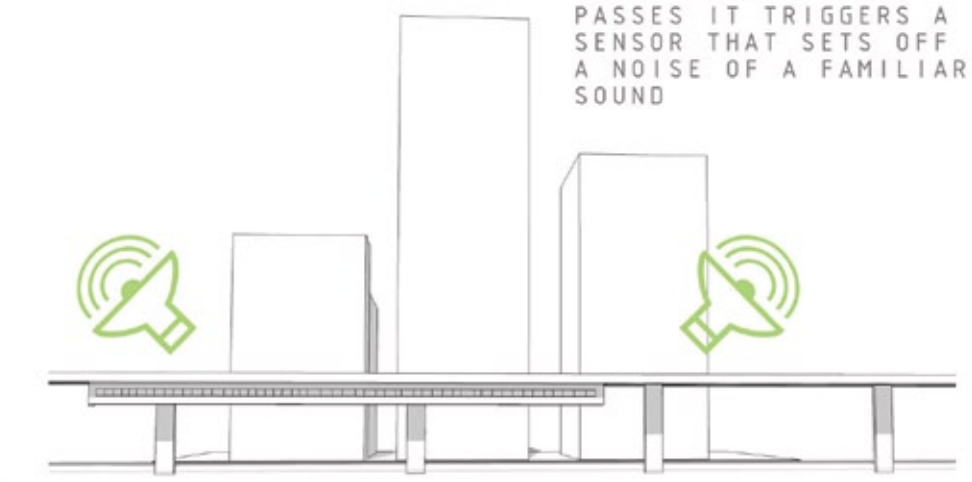
ADVERTISING CHANGE

AS TRAIN PASSES SOMETHING CHANGES ON ADVERTISING DISPLAYS. POSSIBLE VIDEOS DEPICTING NOSTALGIC MEMORIES OF CHICAGO AND THE 'EL'



NOISE MAKER

EVERY TIME A TRAIN PASSES IT TRIGGERS A SENSOR THAT SETS OFF A NOISE OF A FAMILIAR SOUND



CONCEPTUAL

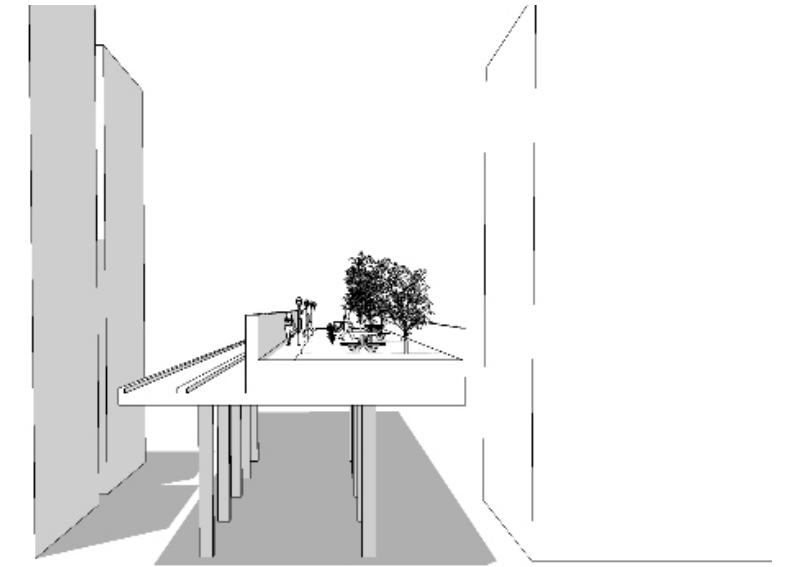
After the major encumbrance of the automobile beginning in the 1950's, Chicago's streetlife changed. Of course there existed some automobile traffic and streetcars prior to this period, but pedestrians had much more right of way to the streets and were often gathered within the confines of the street. Today there is a definitive boundary, a space for cars and a space for pedestrians, but never intermingled and never exclusively pedestrian. Since the 1960's European cities have embarked on creating many pedestrian zones within cities, Copenhagen, Denmark, being the mecca of this innovation. However there is a problem with comparing Copenhagen to Chicago due to the obvious differences of their planning and the typology of buildings within each city. This led me to a new perspective on the terminal project and created questions which will be answered throughout the endurance of this thesis.

QUESTIONS:

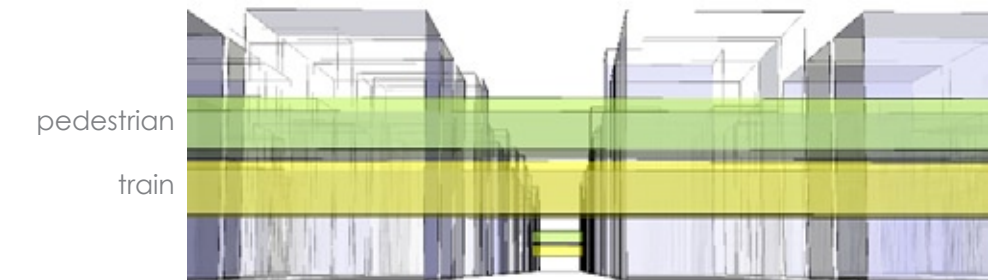
How can the space created by pedestrian and bike zones in historical Copenhagen be integrated into a city like Chicago, which is much younger and built on a principle of verticality?

Since two layers already exist within the streets with automobile traffic as the first and the elevated train system as the second could more layers be added providing additional methods of transport and creating more public space?

PARALLEL LEVEL GROWTH



VERTICAL TRANSPORTATION GROWTH





CONCEPT: RIBBON NETWORK



The elevated train system acts as a spine to the city of Chicago. When viewing the train routes in aerial perspective they begin to transform into something more. They are “ribbons” that weave themselves through the city. Everyone is connected to this thread. Using the “ribbon” as inspiration, it was taken into elevation and section view to be explored in a vertical manner. Spaces can be created in these openings and they can begin to open up to other activities.

STATION



*wherever there is a station the “ribbon” expands to its fullest
*pedestrianized under stations

CAFE / SHOP



*small self-sufficient business would be scattered along pedestrian zone. utilities could hook through columns.

BENCHES



*“ribbon” will form benches along pedestrian path.

RECREATION SPACE



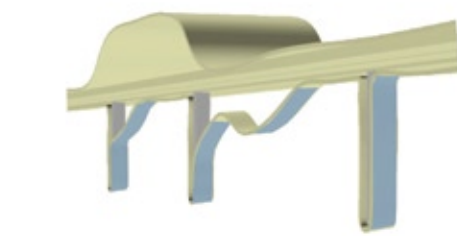
*small recreation space for upper loop patrons will be accommodated. “ribbon” form is conducive to skate boarders.

TRAIN

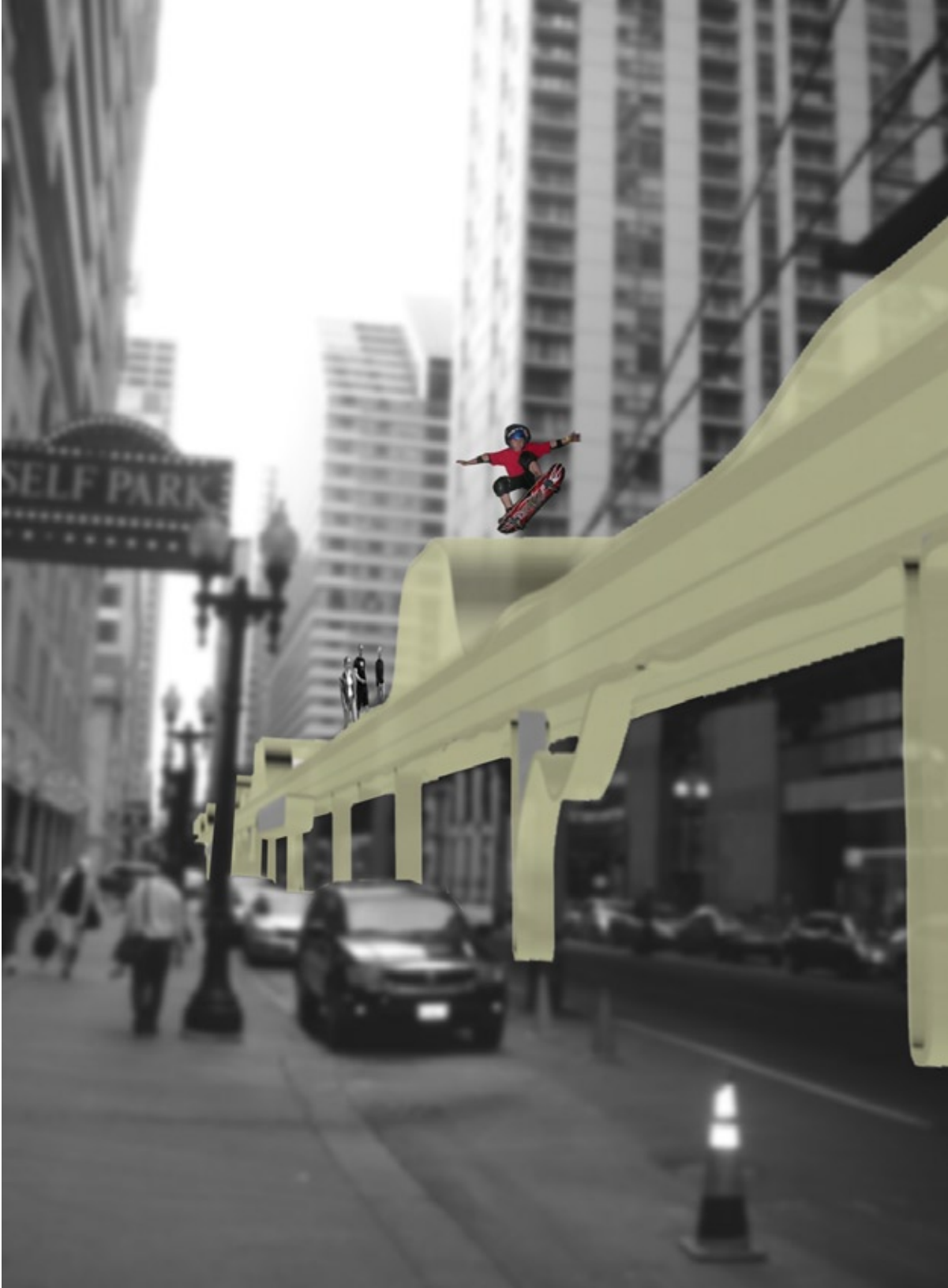


*covered sitting areas will be provided for unfriendly weather conditions.
*train is incorporated in “ribbon” design becoming the only piece that isn’t constant.

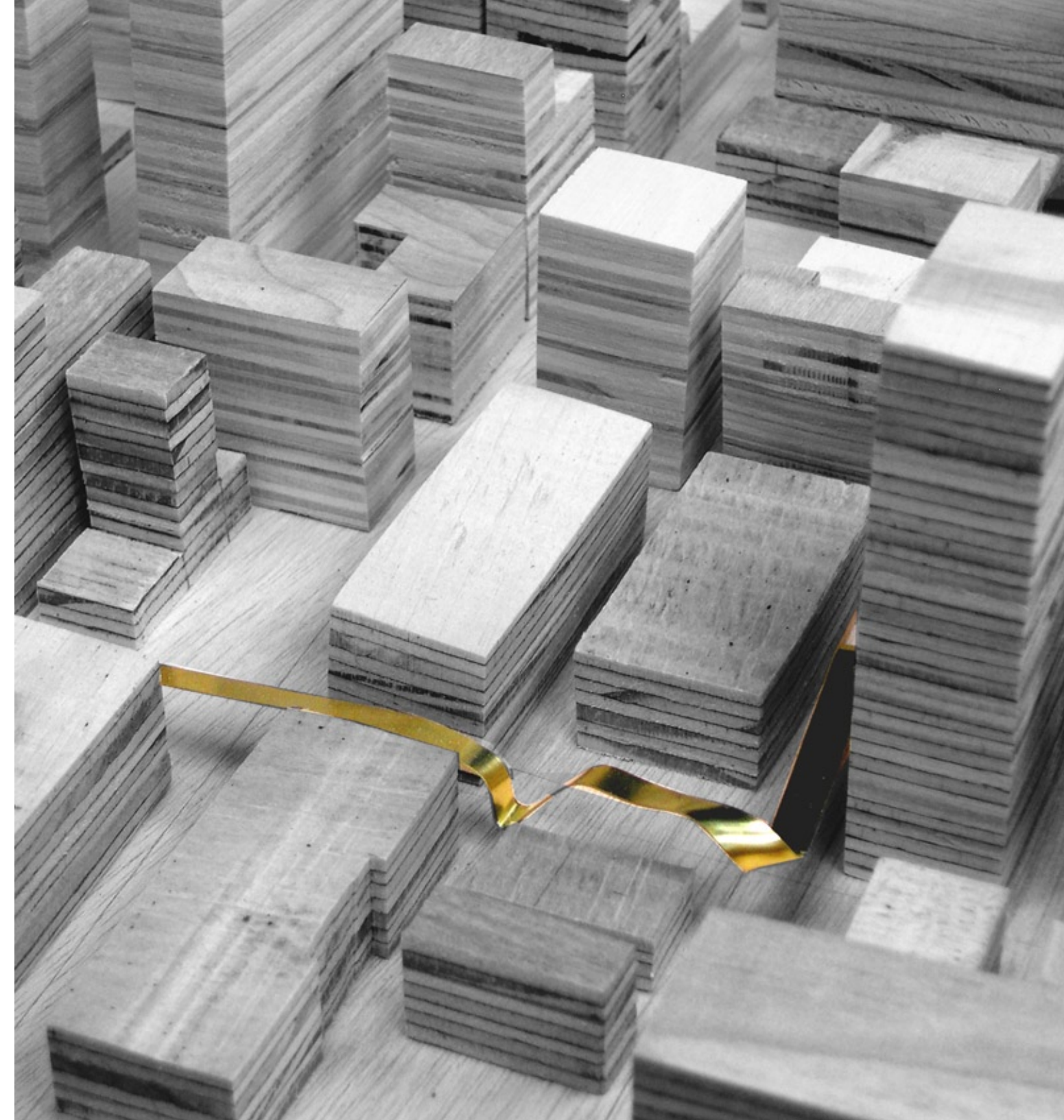
ADVERTISING



*advertising would be utilized on “ribbon” below perpendicular with passing traffic as a way of generating revenue.

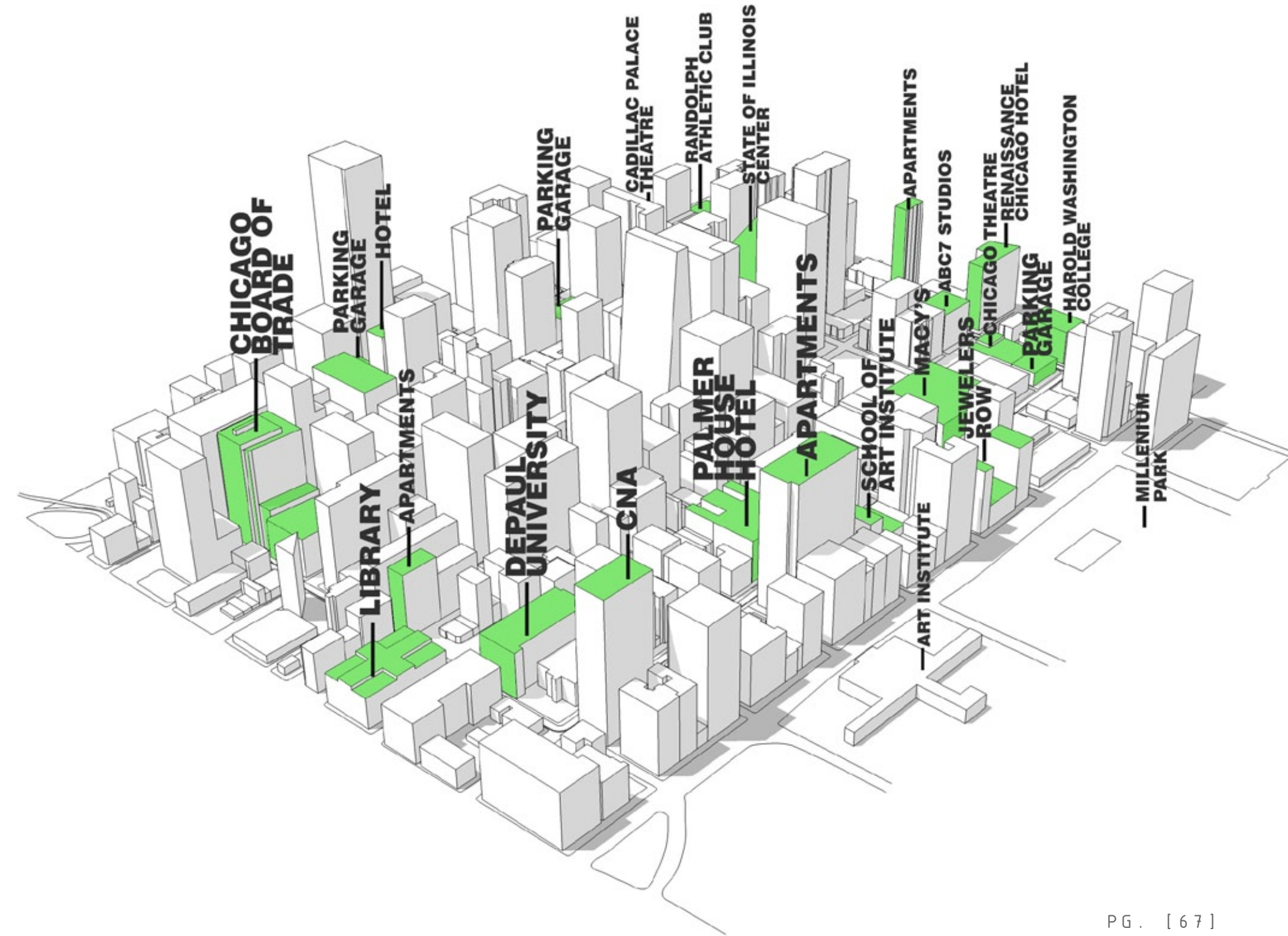


CONCEPTUAL RIBBON MODEL
IMPLANTED IN SITE MODEL

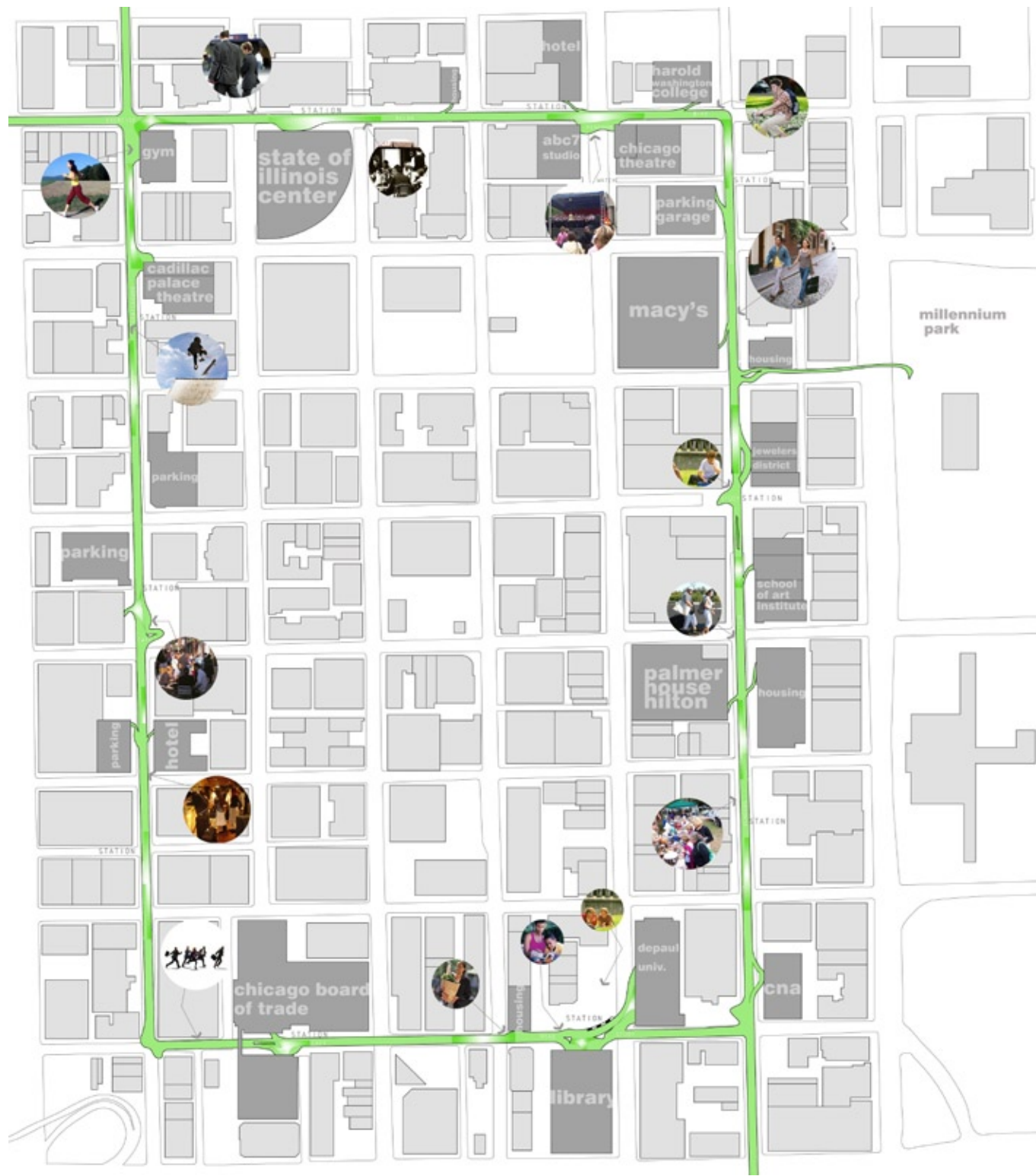


LINKAGES

After moving through the conceptual phase, I realized it was imperative to begin considering how people approach the structure and move from the ground up to the train stations and then continue to the public landscape atop. Linking the structure to existing buildings became a key aspect in making this system have a flawless transition in which users are able to move about without noticing any change of rhythm within the architecture. By using the site analysis previously illustrated this linkage diagram was constructed. These links were decided by their location, occupancy levels, and variance in program.



SCHEMATIC DESIGN



UPPER LEVEL SITE PLAN

From the Linkages Diagram I was able to create a site plan of the upper level landscape illustrating these linkages. The concept of the "ribbon" becomes evident again within this image. The "ribbon" starts to expand and contract creating larger public spaces to relax and enjoy the city around and below you. It becomes an oasis within the urban hustle and bustle. It also provides a fast pedestrian lane for inhabitants looking to travel between linkages or stations. This way they never have to deal with the stop and go pedestrian traffic on the street level.

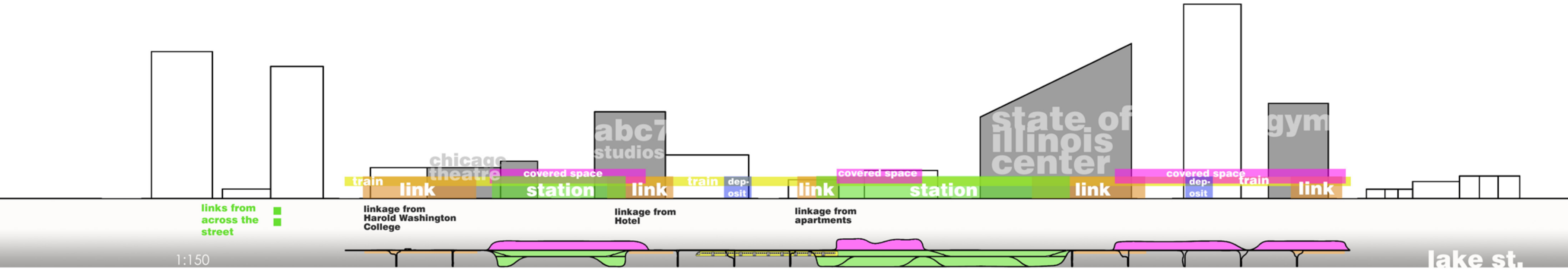
GROUND LEVEL SITE PLAN

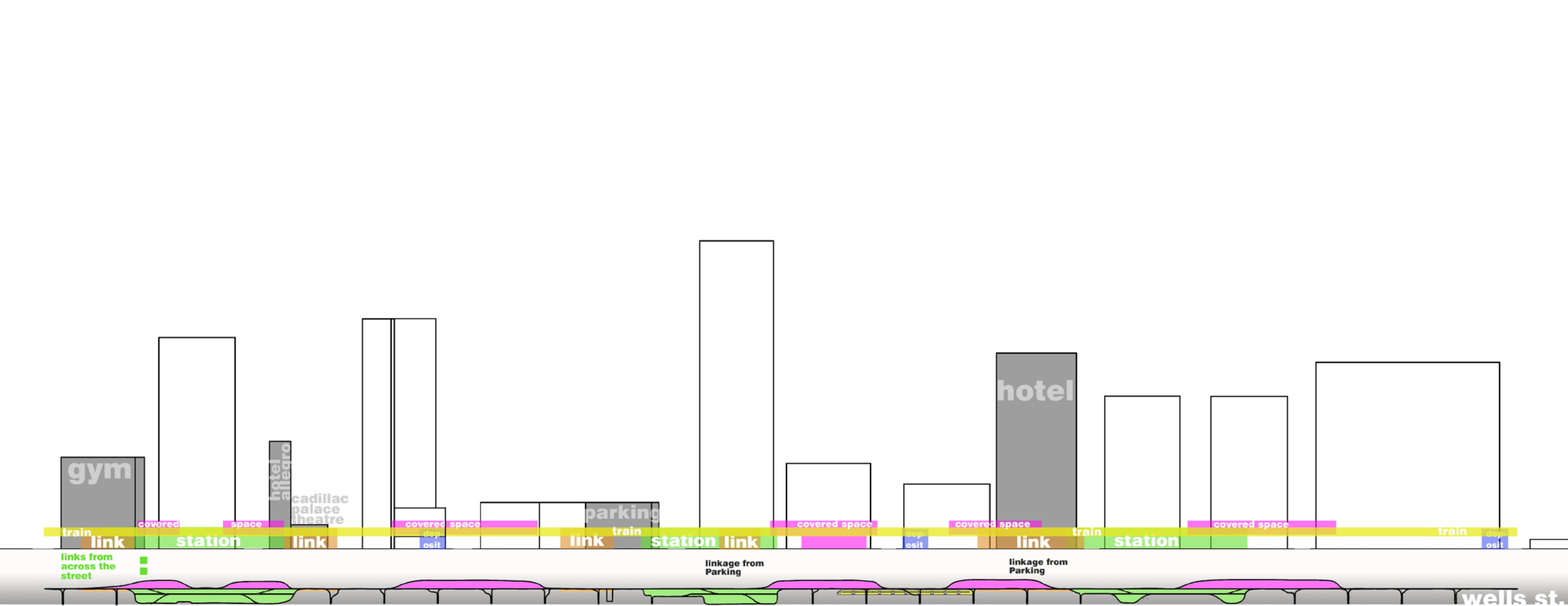
I also began considering the ground plane and how it could be more inhabitable by pedestrians. By closing certain portions of the streets, pedestrian plaza's and thoroughfares begin to engage the city street life. The idea of my project is not to destroy street life by moving it to another platform, but rather, to create different zones of activity. The pedestrian landscape allows people to find escape within the city and gives users a platform to enjoy their surroundings.

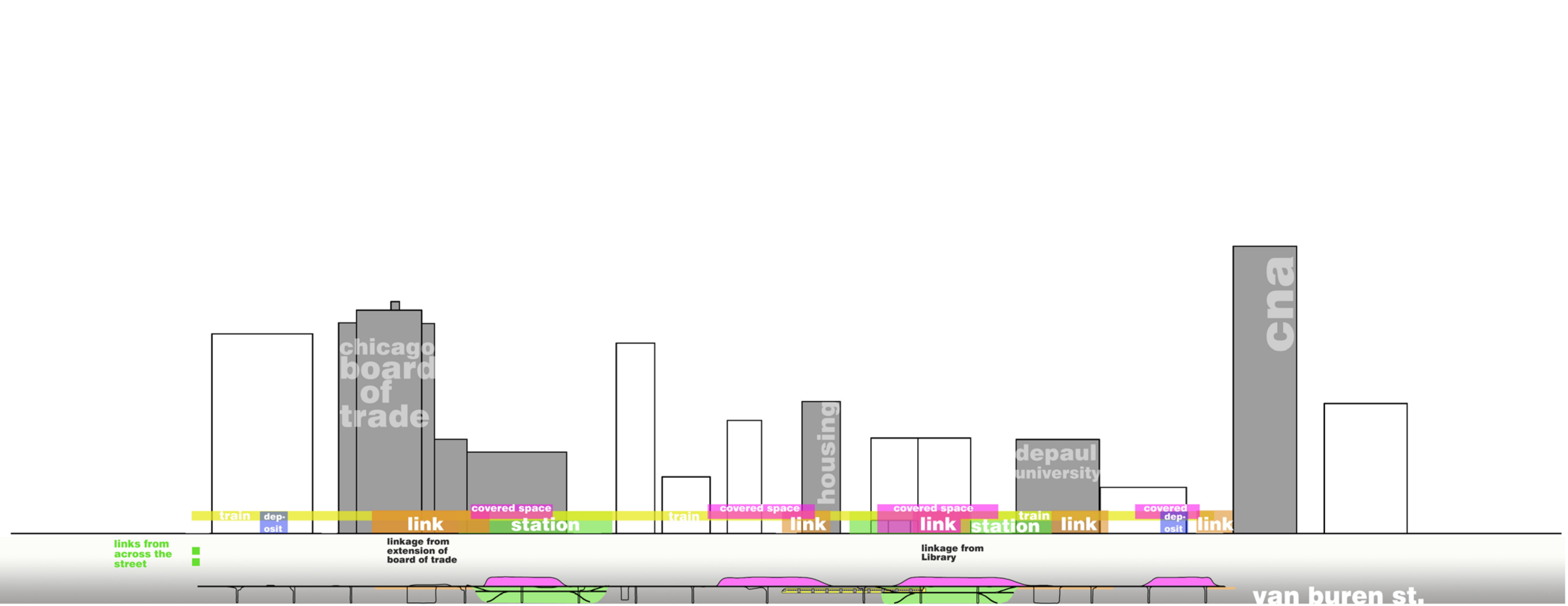


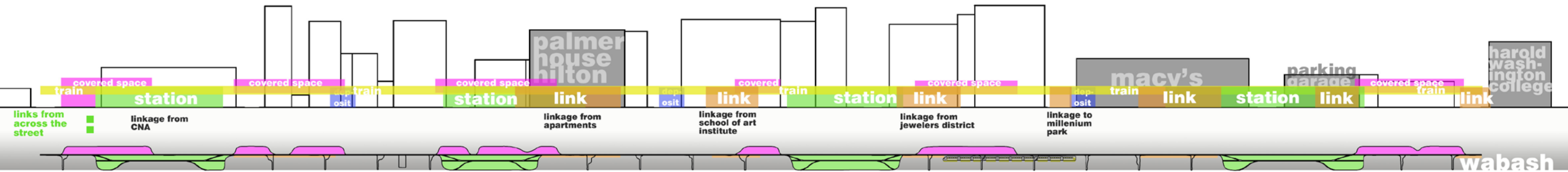
DIAGRAMMATIC ELEVATIONS

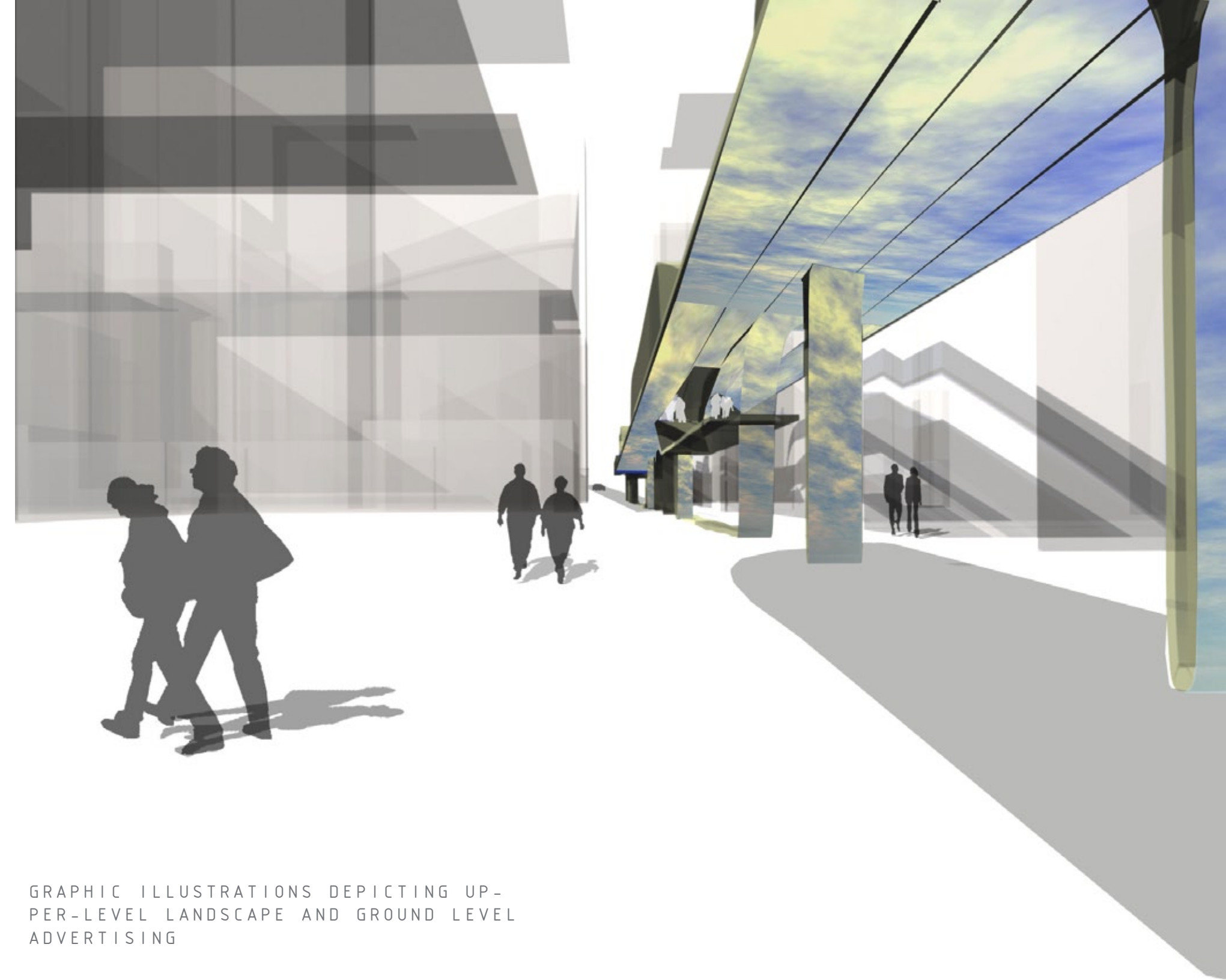
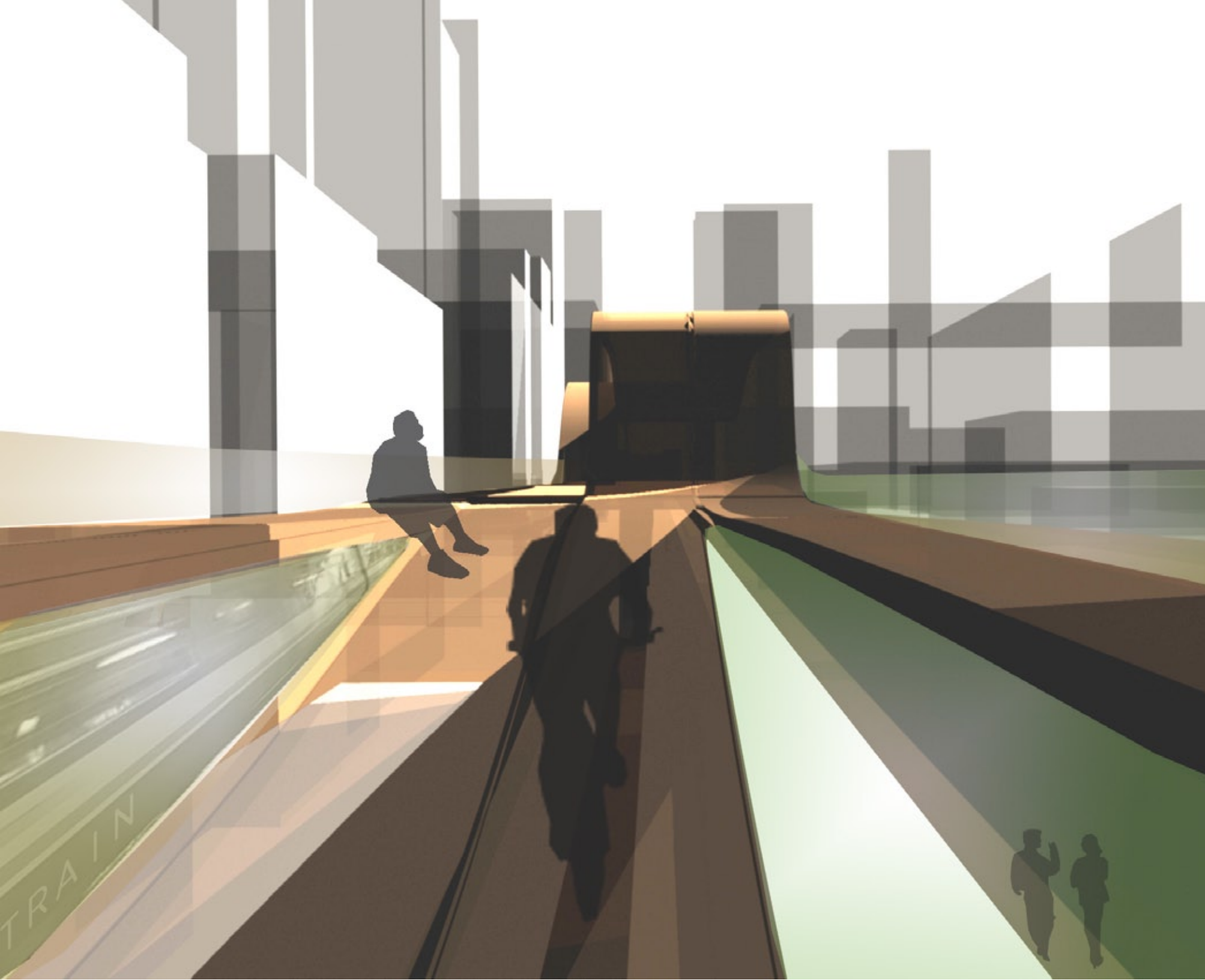
Since this system weaves itself not only horizontally but also very much vertically, these four pages of elevations give an understanding of the flow between ground level, station, and pedestrian landscape.









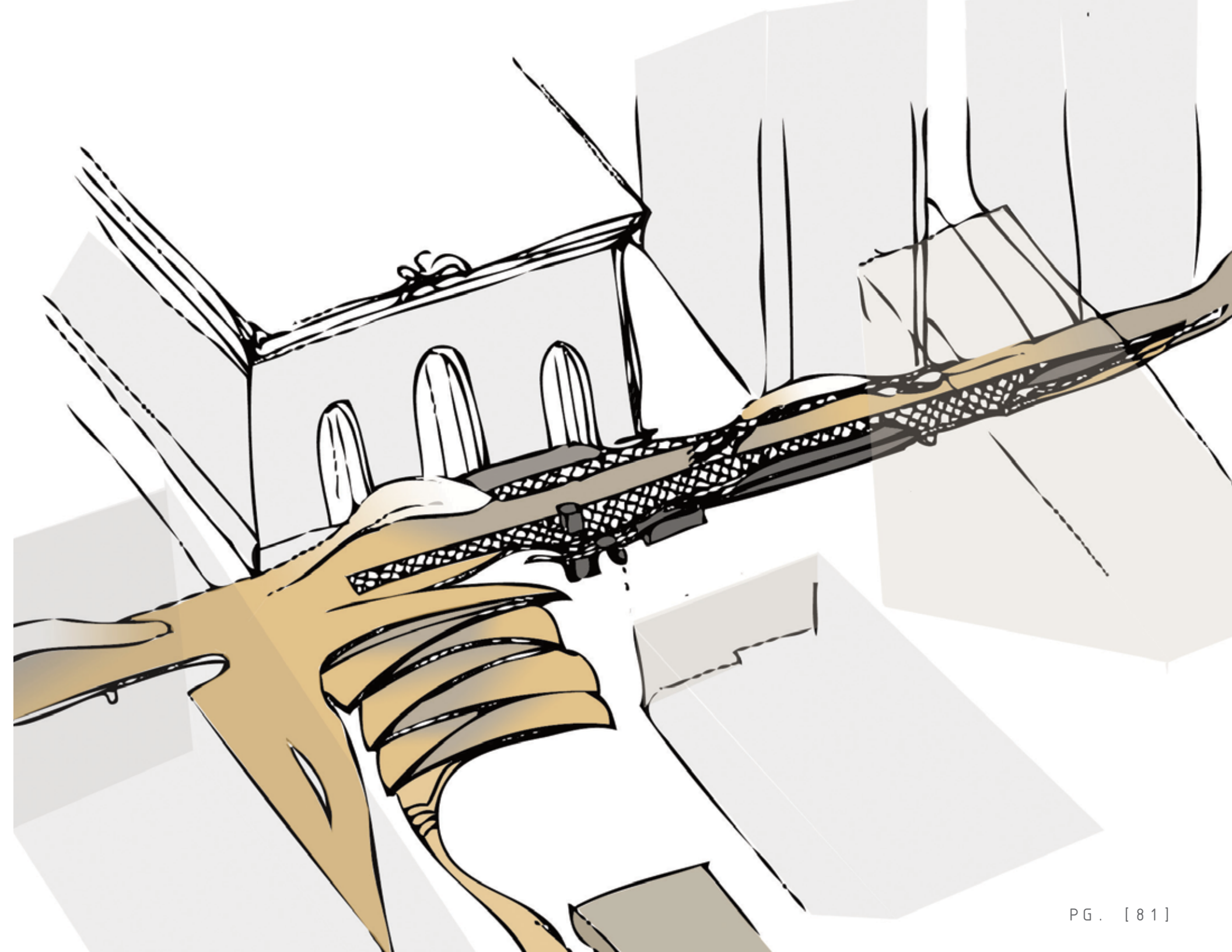


GRAPHIC ILLUSTRATIONS DEPICTING UP-
PER-LEVEL LANDSCAPE AND GROUND LEVEL
ADVERTISING



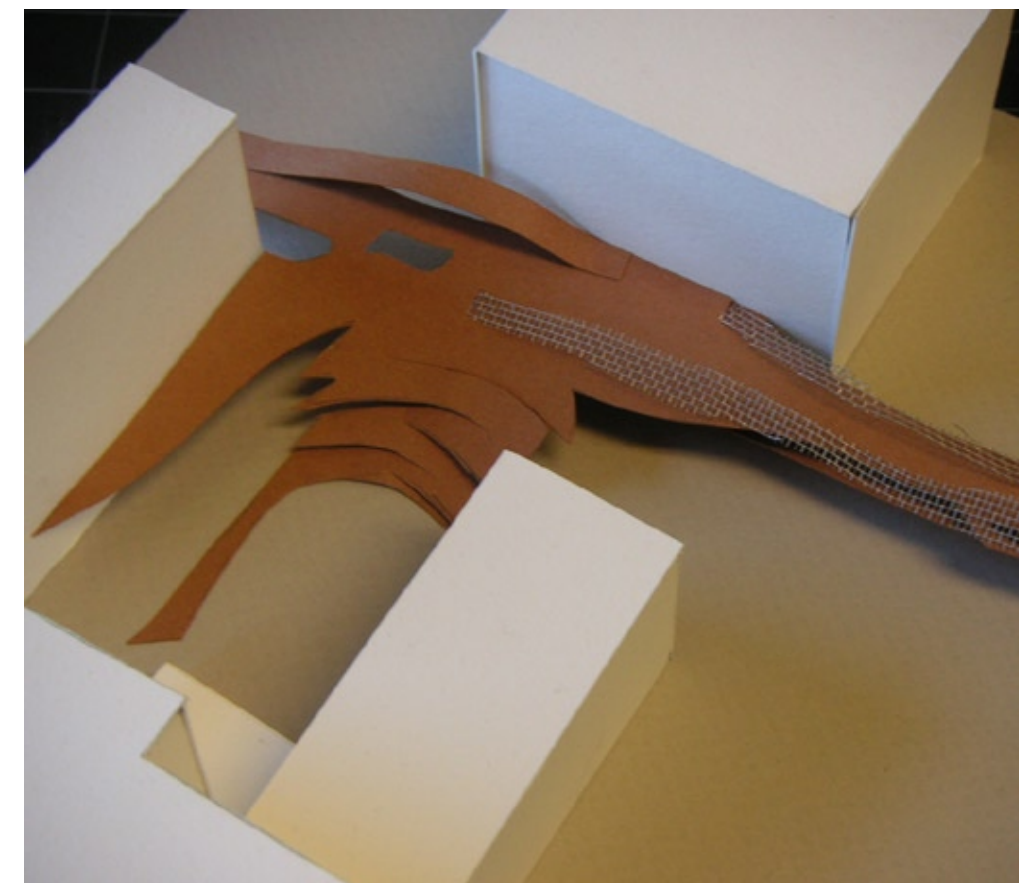
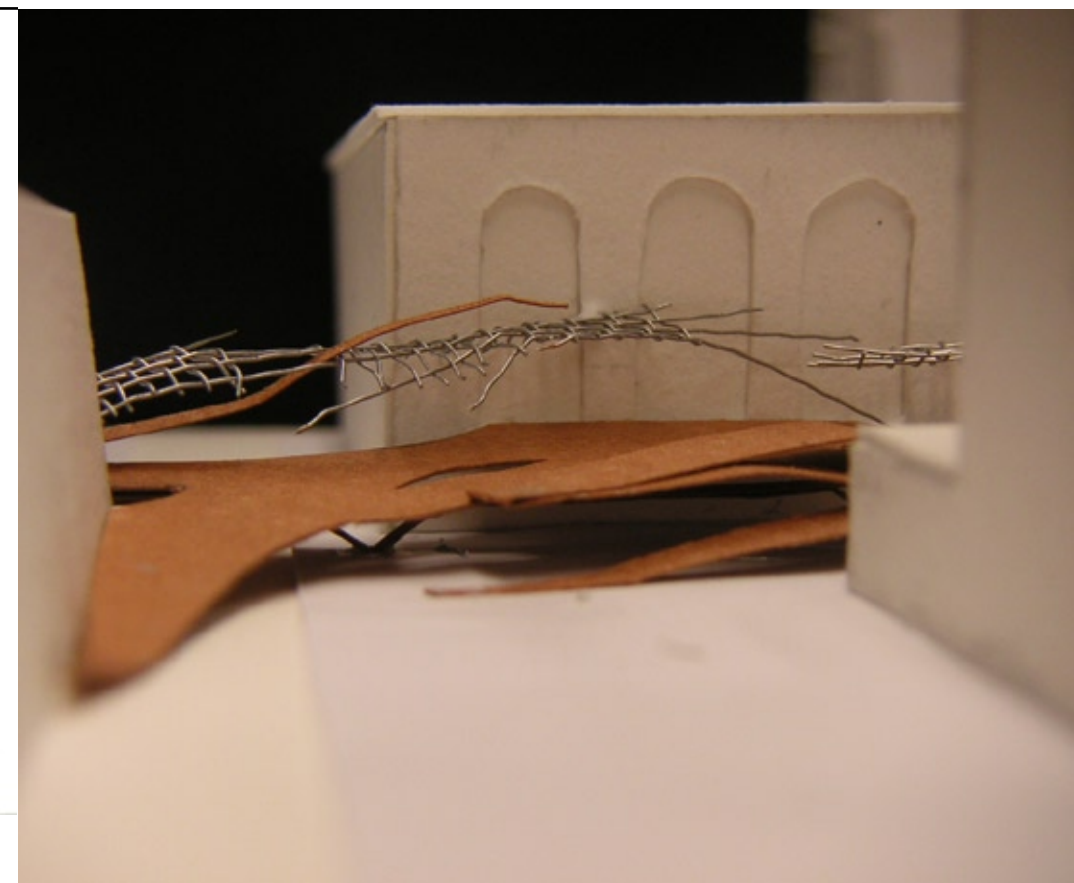
FOCUSED ZONES OF ACTIVITY

After exploring design within the entire site, I decided to move to a more focused zone where design could be taken to a deeper level. I began by reviewing the site plan previously created and chose to explore only in areas where there was some vacant space not yet built upon. This would allow opportunities for my project to spill into the urban context and not just hover within it. The site I chose is in the south east corner of the Loop surrounded by the public Library, Depaul University buildings, and apartment buildings. With these three different programs, the site could be utilized by many different types of people and allow students, and residents a place to relax. As design ensued, the “ribbon” began to extend into the open area, becoming a path down to the ground level, but also acting as risers / seating. It could be used as ampitheater seating for possible films displayed on the building to the north or for live venues within this small park.





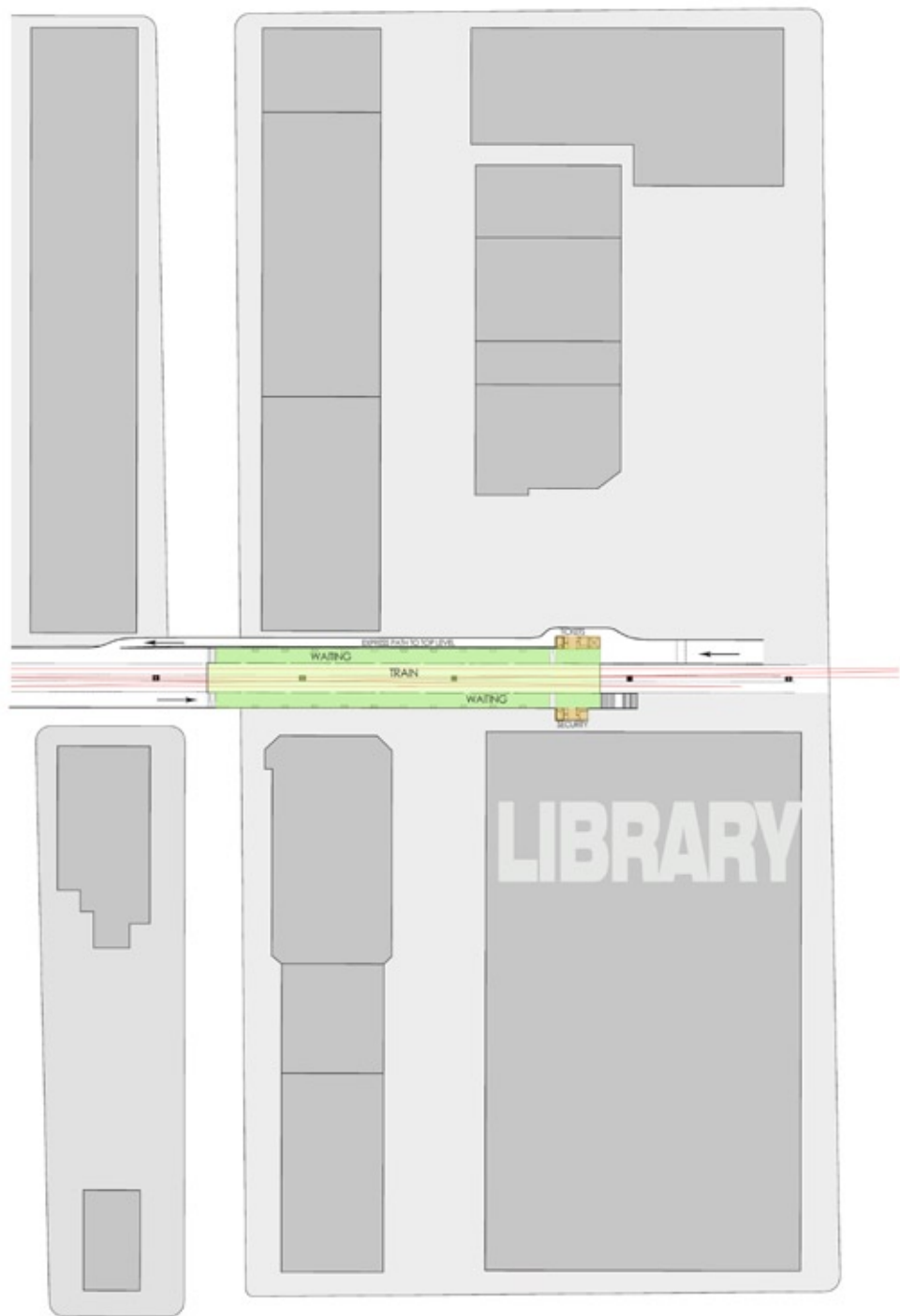
SKETCHES OF FOCUSED ZONE IDEA



STUDY MODELS

FINAL DESIGN
DEVELOPMENT

While focusing within the south east zone of the Loop, I was able to consider more detailed issues such as materiality and how the section and plan of the station and public space would be constructed. These drawings have been included within my final design documentation. However, after doing so, I was led to the conclusion that I was overdesigning something that didn't want to be designed. I was trying to create the event rather than creating an environment which could be allowed to foster countless events. From this point I began to look at the site as a whole again. I felt the project needed to have identifiable zones, however, to provide opportunities for various events or recreation throughout. By returning to the diagrams created during site analysis I began cataloguing 'feelings'. These 'feelings' stemmed from the surroundings and began to represent a way finding device. Perhaps inhabitants could start to identify certain zones as the 'happy' zone and another as the 'calm' zone, etc. These eventually led to correlations with materiality, form, and digital media, as shown in the following illustrations.



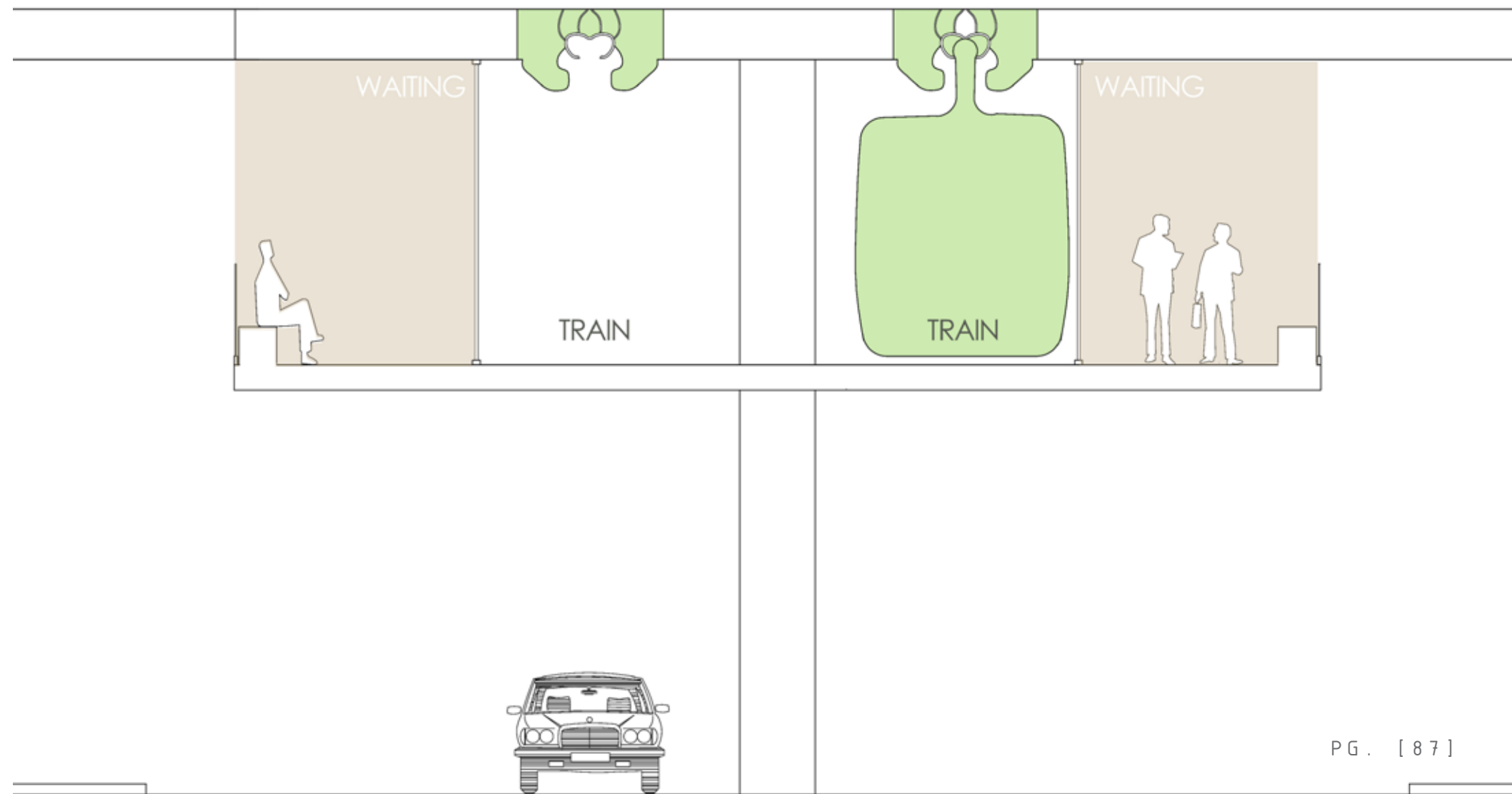
STATION LEVEL FLOOR PLAN

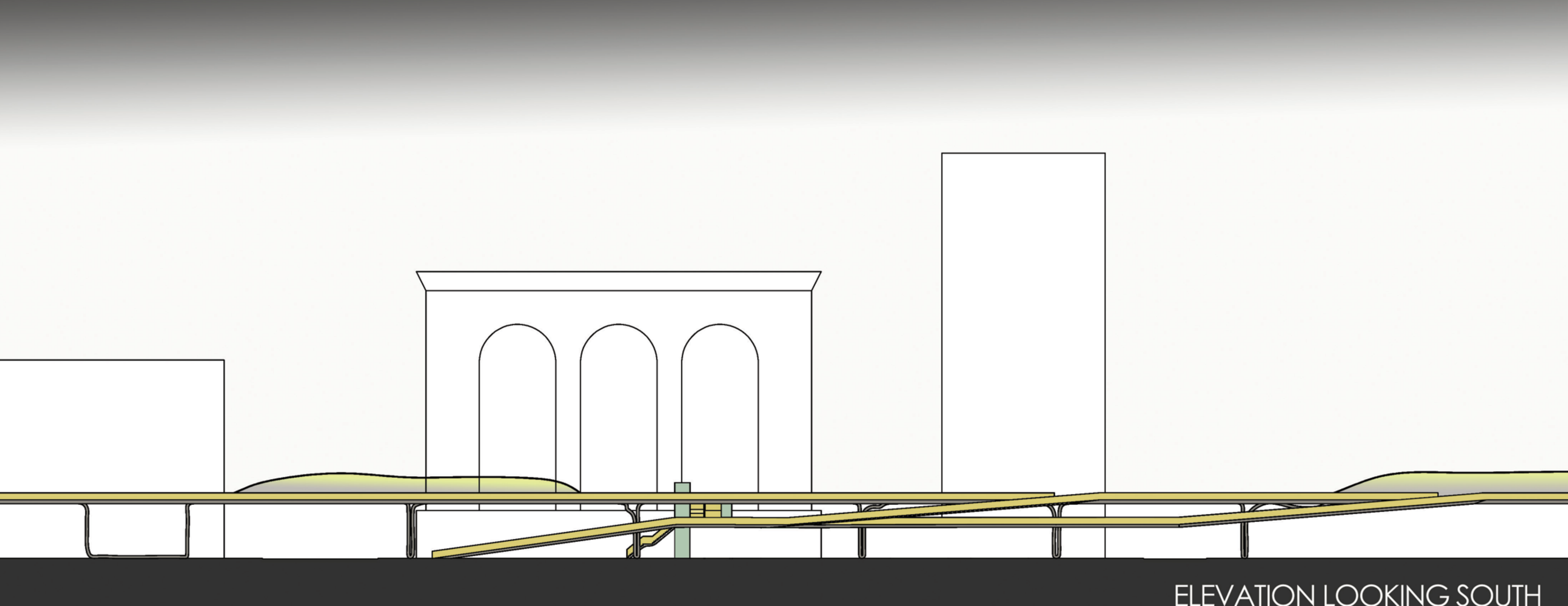
1/64" = 1'

TYPICAL STATION ORGANIZATION

While focusing around the library and De-paul University, I began working out the entry and exit in plan form. I wanted to stay consistant with the flow of the "ribbon" so it was somewhat challenging. There had to be a way for people just moving to the upper landscape to enter without having to pay to get past the station platform. The paths had to diverge and move past one another.

While working in section, I came to the realization that the organization of the train rail in relation to the CTA riders waiting platform needed to be inversed. I had originally imagined the waiting platform to be between the rail tracks, since this would simplify the accessways to one entry and exit. However, structurally, it made more sense for the trains to be in the center, as they exist today in Chicago, and provide seperate accessways for pedestrians depending on which direction they are travelling.

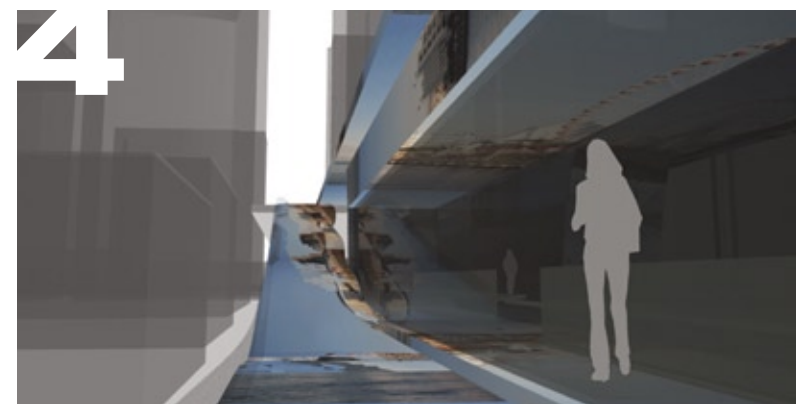
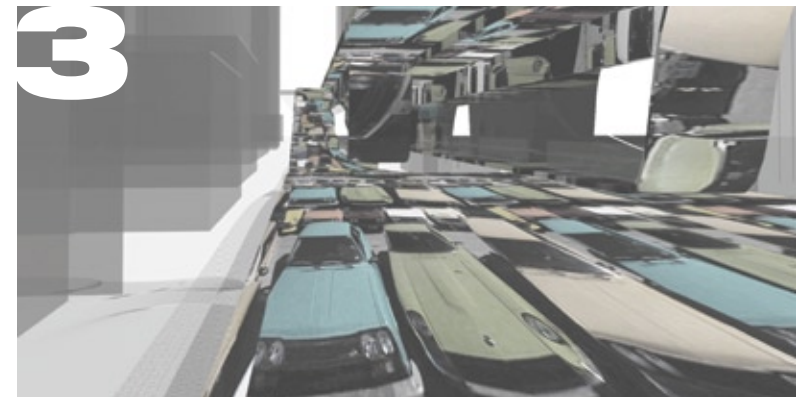
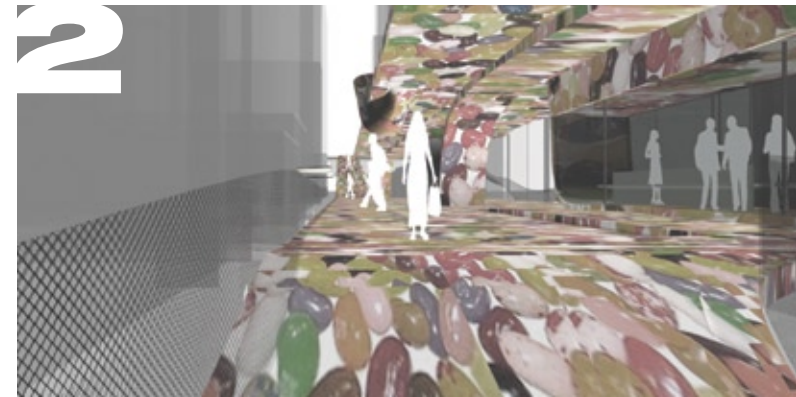
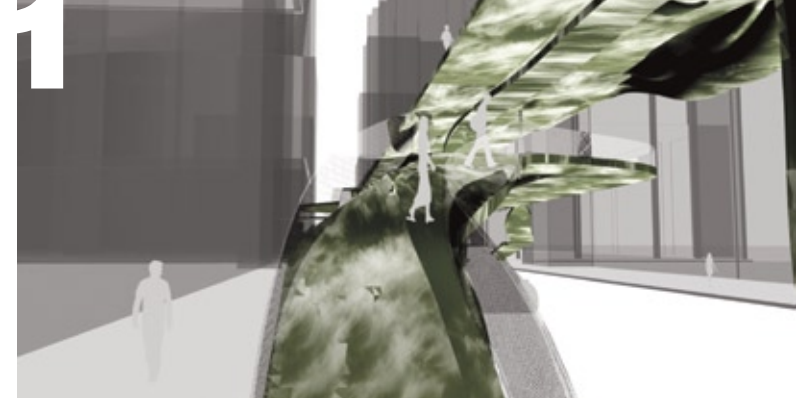




ELEVATION LOOKING SOUTH

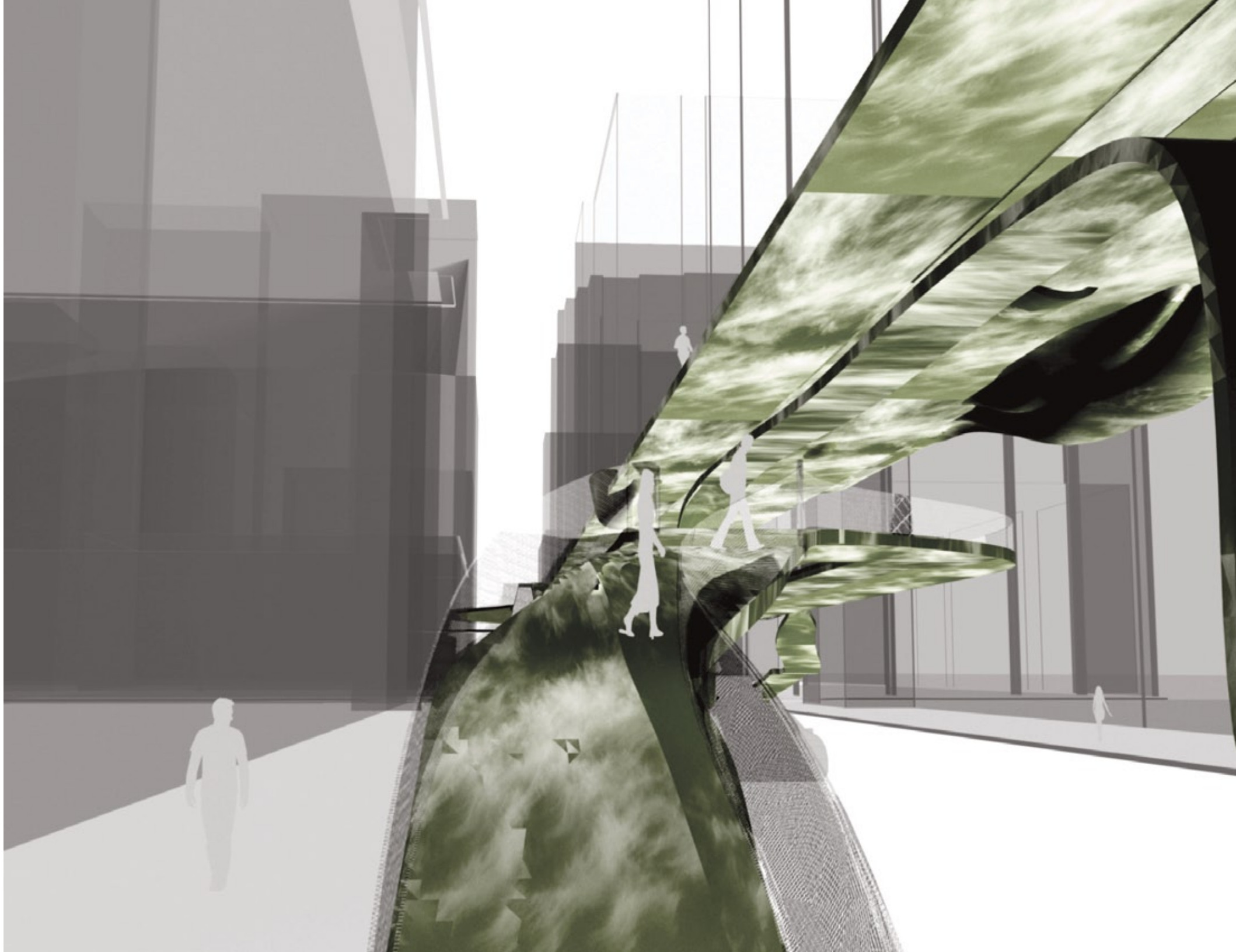
INFO-SCAPE: GROUND LEVEL, STATION & ADVERTISING

The following renderings illustrate how the use of advertising would affect the streetscape. It will become a continuous reel of imagery that changes as one moves down the street. Looking back to the existing systems' noise analysis, properties of this infoscape could become the new flux in relation to the past. As was stated previously, approximately every two minutes within the current system, a train moves through the Loop, causing a major impact on audibility in the area. With this noise level reduced significantly through the use of technological innovations within my new system, this infoscape could develop habits that change the street life in a different manner than noise. Perhaps every two minutes the advertising stops and historical documentation of Chicago is displayed. Other possibilities include: a viewport into another part of the city that is happening within the present or an active camouflage which makes the structures' surface appear as what is behind it. This would become the commercial break within the advertising.



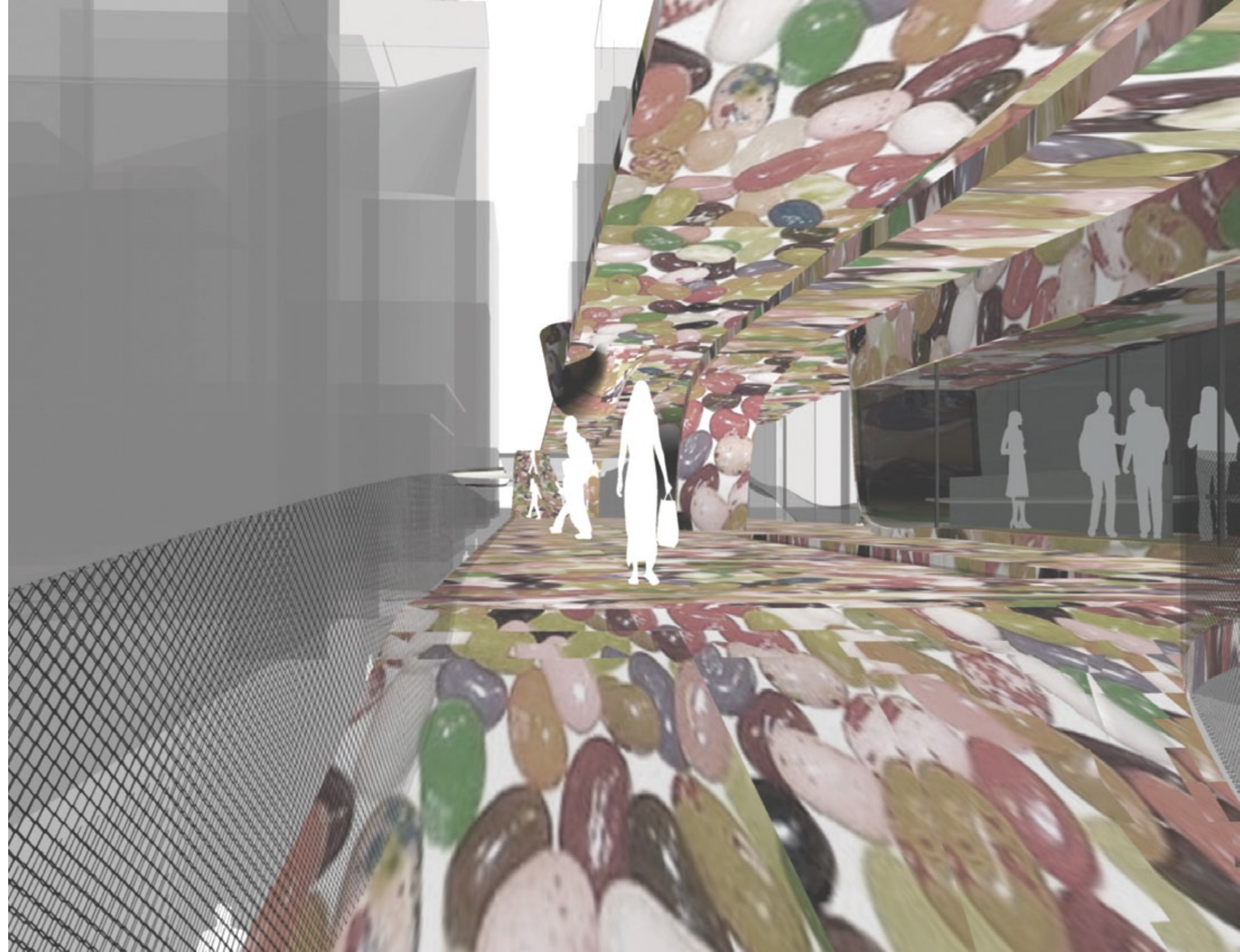
1

Active camouflage of the sky as one moves from street level to station level.



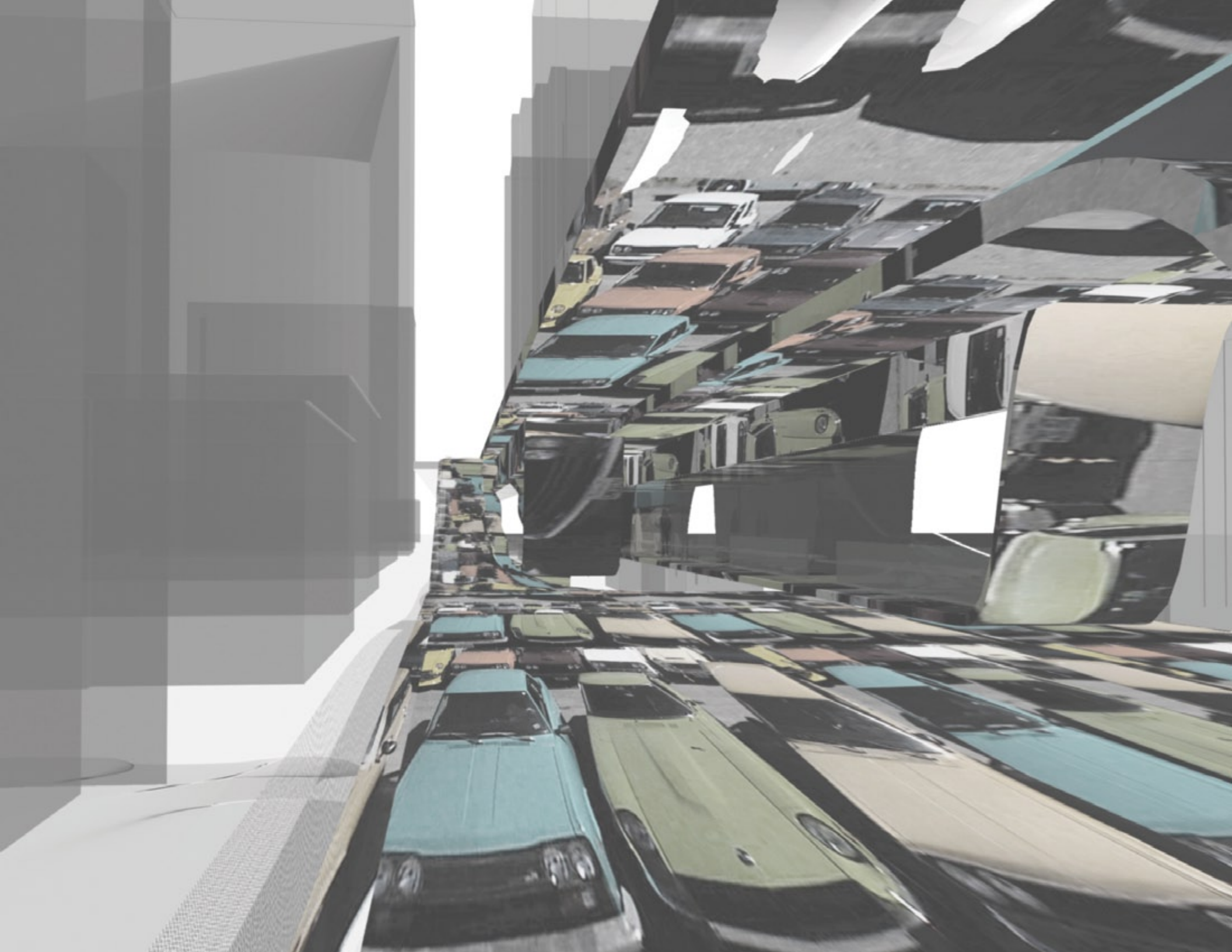
2

Abstract advertising, changes as one moves into the waiting platform. Train to the right also displays moving imagery.



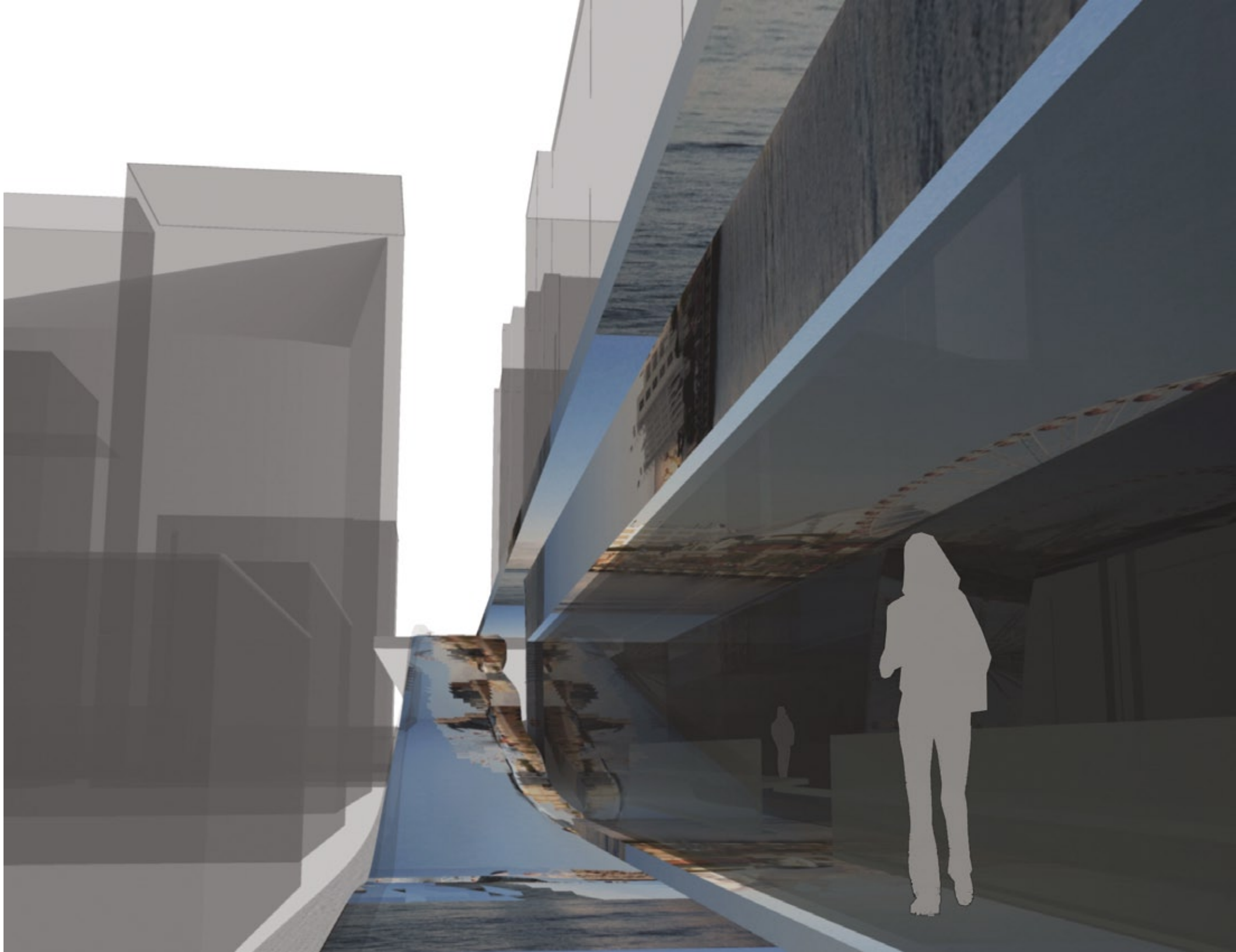
3

Moving through the station. Advertising which also acts as active camouflage for traffic below.



4

Moving towards upper landscape. Advertising has changed to scene of the Navy Pier.





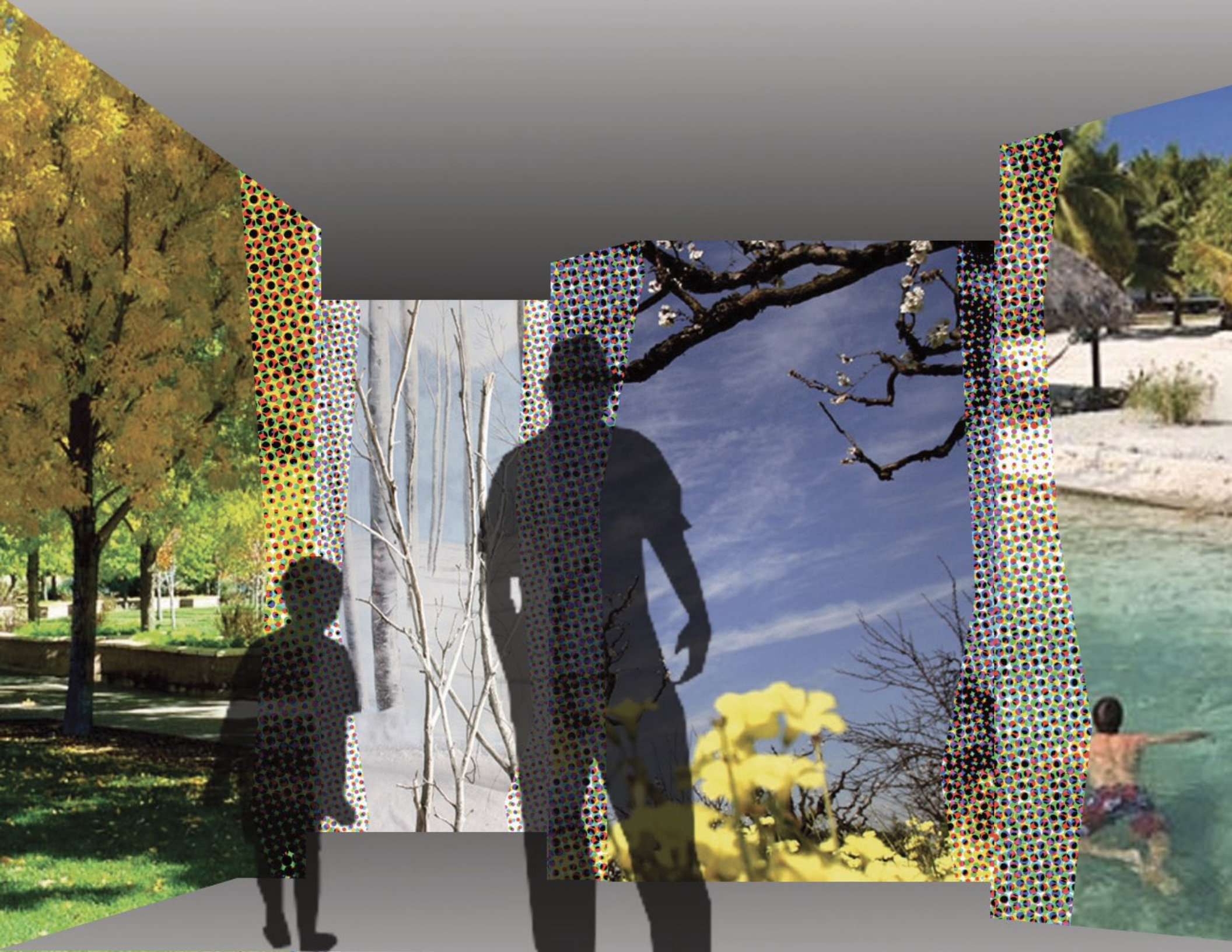
INHABITABLE LANDSCAPE



SITE IDENTIFICATION & FEELINGS

As I pulled back from overdesigning the focused zone, I began looking at the whole site again. As stated previously, I began to use feelings as a way of cataloguing the site and to give areas of the site their own identity. To the left one can see some of the feelings I identified. From here, consideration of how those feelings would link to a materialistic environment began. However, I really

wanted to make this project more interactive with the users. As if they could design their own landscape. Since we are the product of 20th century innovation, I thought, what is more fitting then giving the users a digital environment where the entire material landscape becomes their choice through the power of technology. The illustration above depicts how the user could move through a database of feelings which would be linked to a representative image. This would then become their environment.



DIGITAL ENVIRONMENT

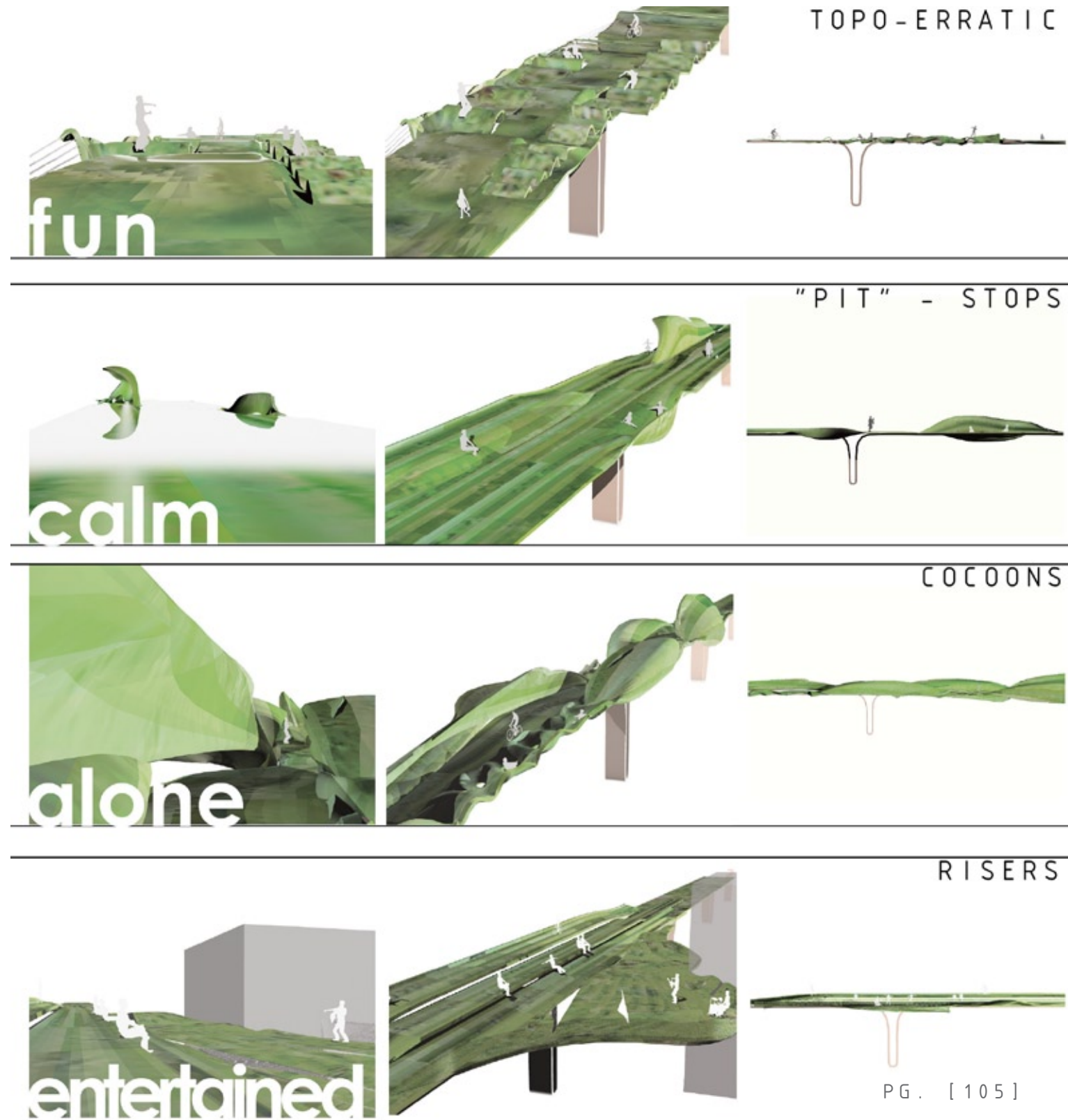
In these images, one can understand this idea of the digital environments upon the site and how it might change throughout the course of the “ribbon”. This would begin to not only affect the users, but also the inhabitants of buildings surrounding the structure. One’s feelings could be anonymously on display for citizens within the city to view. This concept may seem out of reach, however, with the progression of technology to-day, this wallpapering of digital media could happen very quickly. In my advertising research displayed at the beginning of the book, I discussed a material called MagInk. It is a digital advertising technique that acts and looks like paper. It also uses the sun to gain energy. The companies hope is to one day make it advanced enough to act in situations as flexible as a tablecloth.

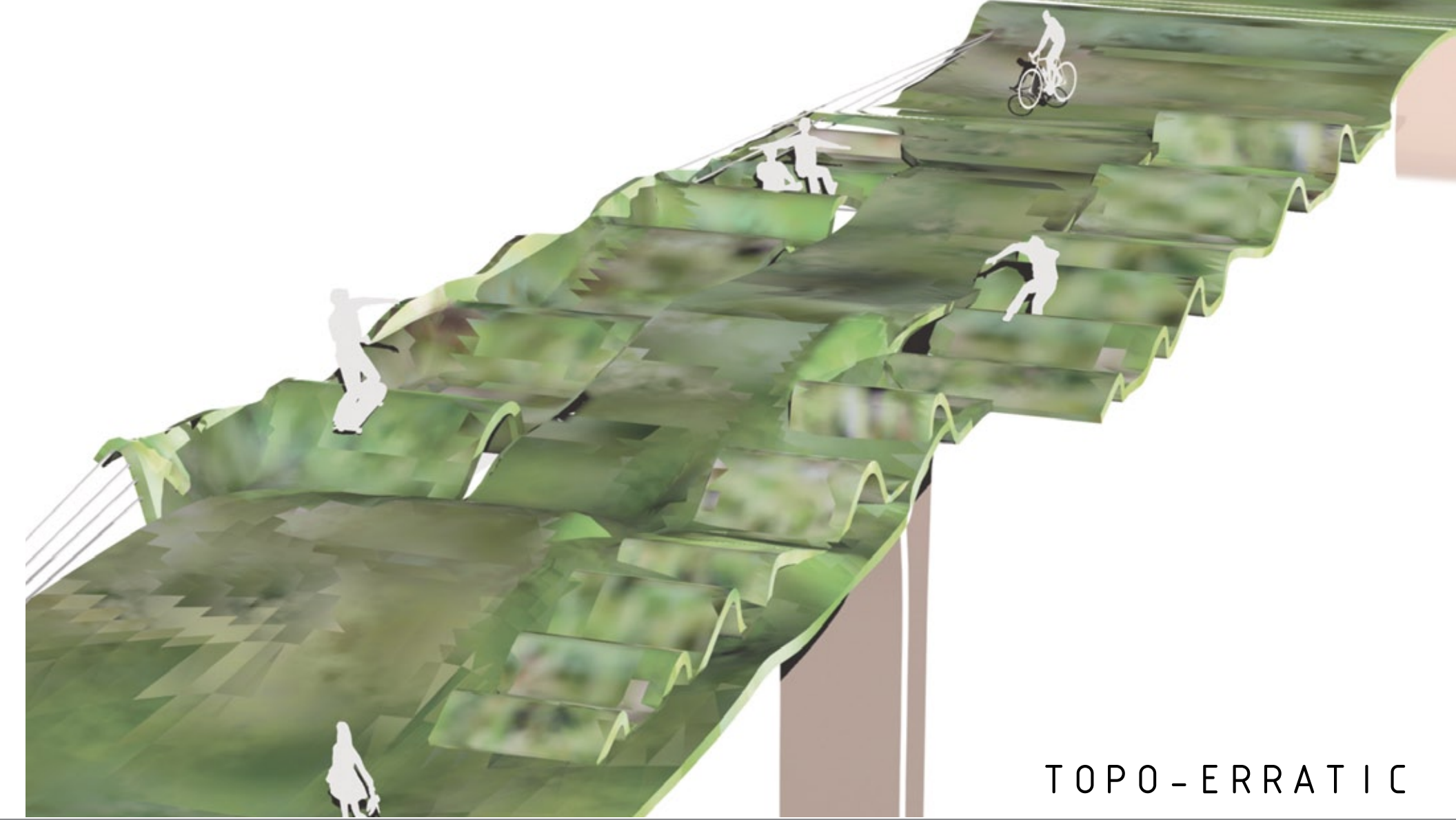
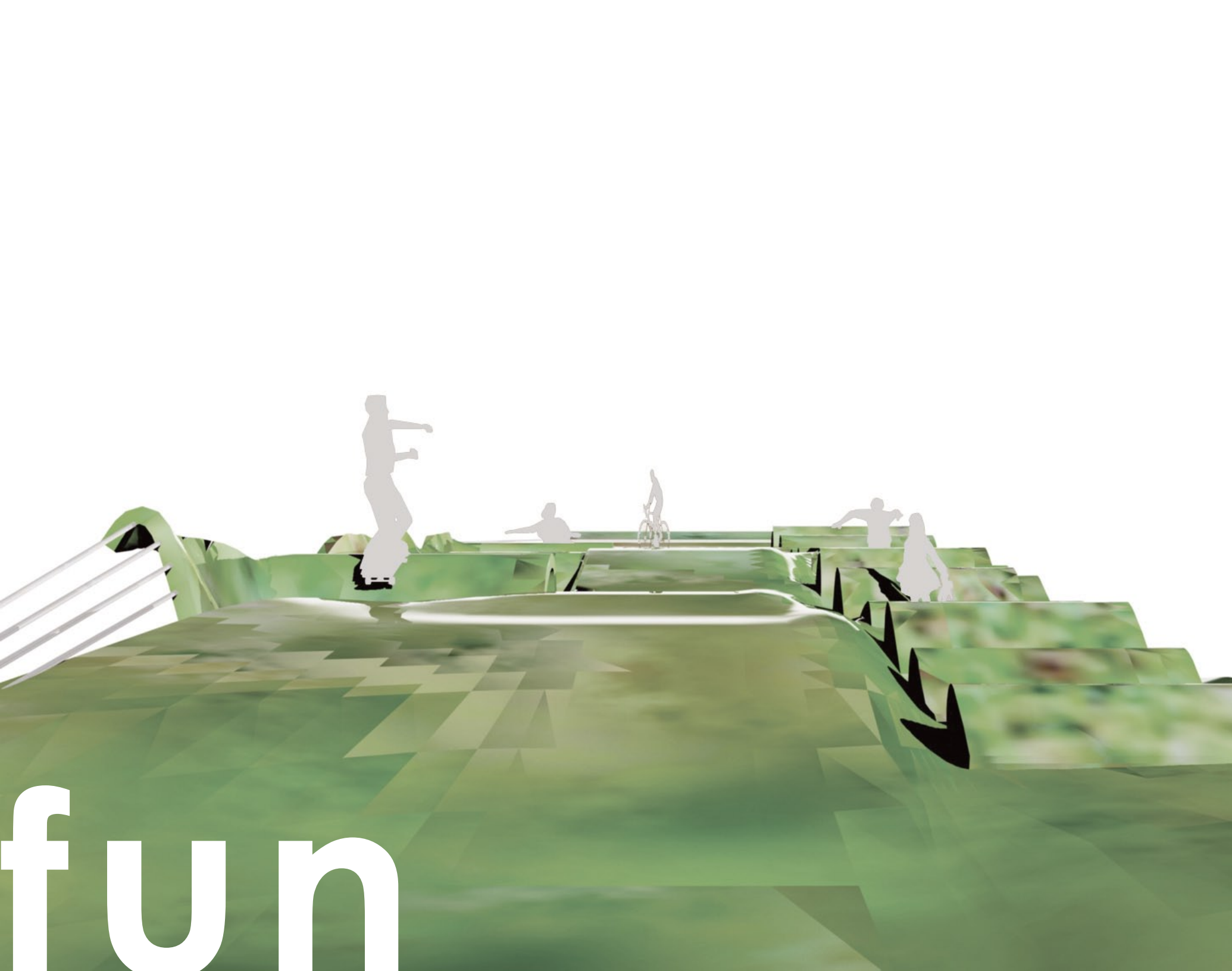
This digital landscape also co-exists well with the underbelly of the system which is also wallpapered in the same material, however, uses images of advertising to gain revenue for the system.



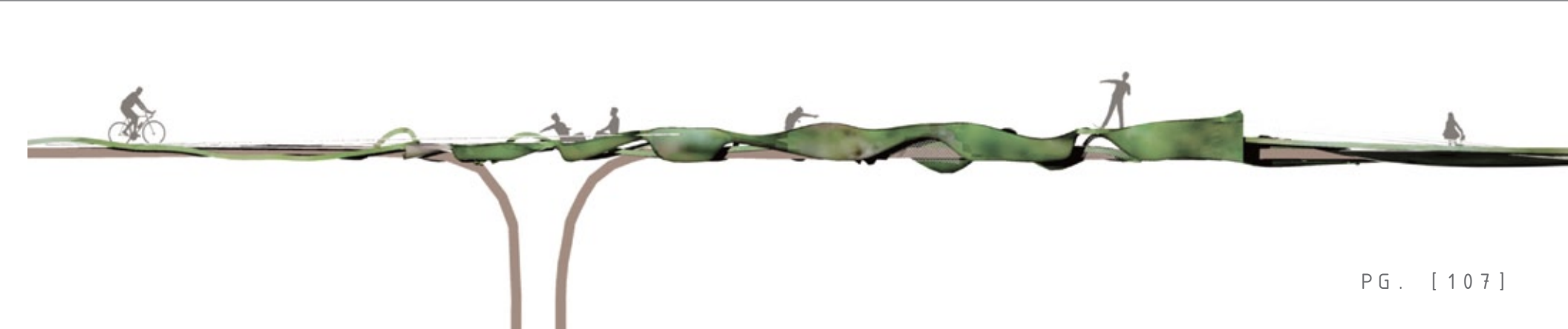
ARCHITECTURE TYPOLOGIES BY ASSOCIATIVE **FEELINGS**

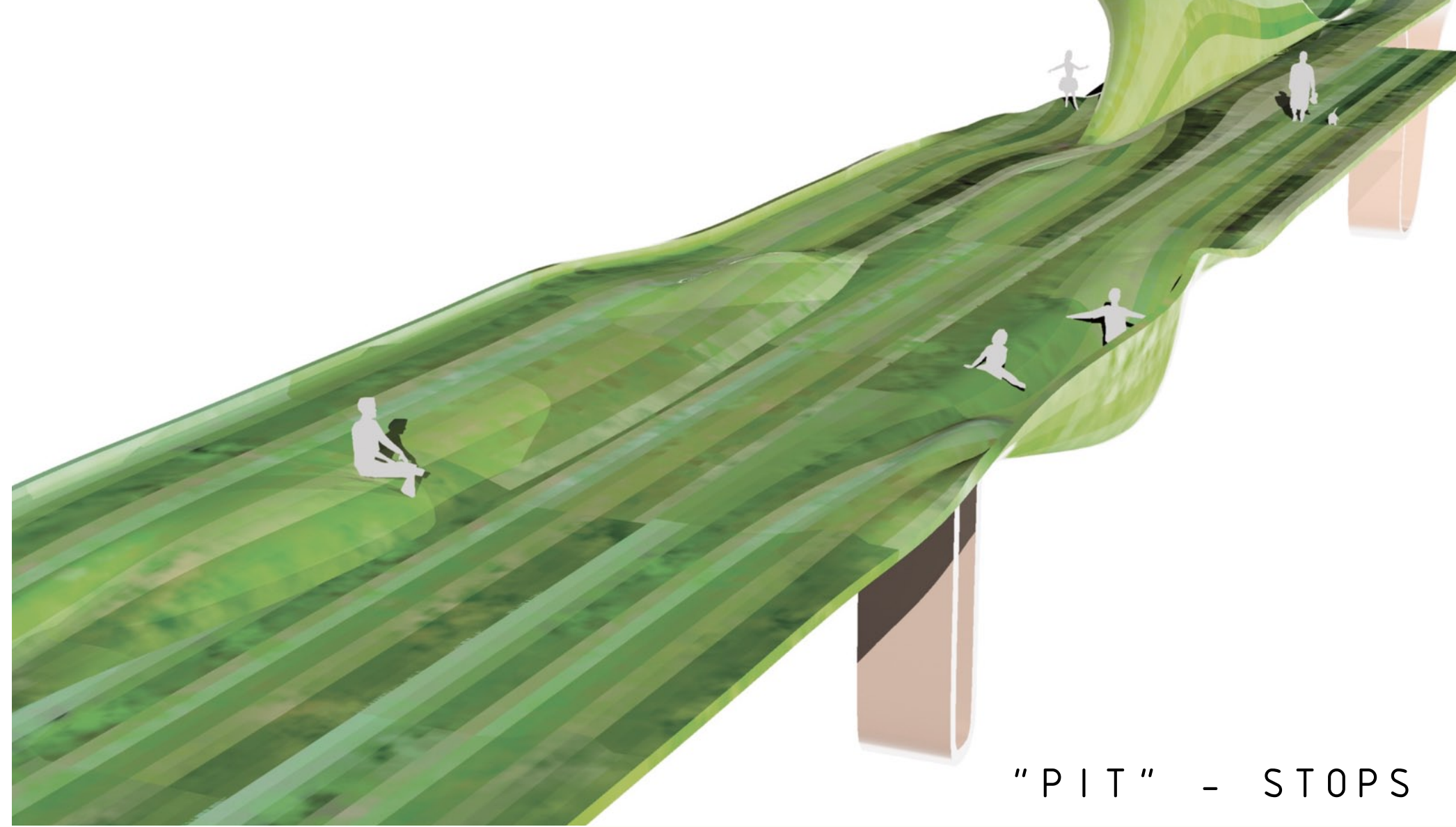
After focusing solely on materiality and imagery of the upper inhabitable landscape, I became curious as to how these “feelings” could correspond with architectural form. From this I created typological forms which I felt could identify with the feelings I had already considered. The digital environment would still coincide with this, however, it begins to give each zone it’s own identity and creates several different types of space for events to happen within. The following pages illustrate four different “feelings” to give an example of what these zones might become.





TOPO-ERRATIC



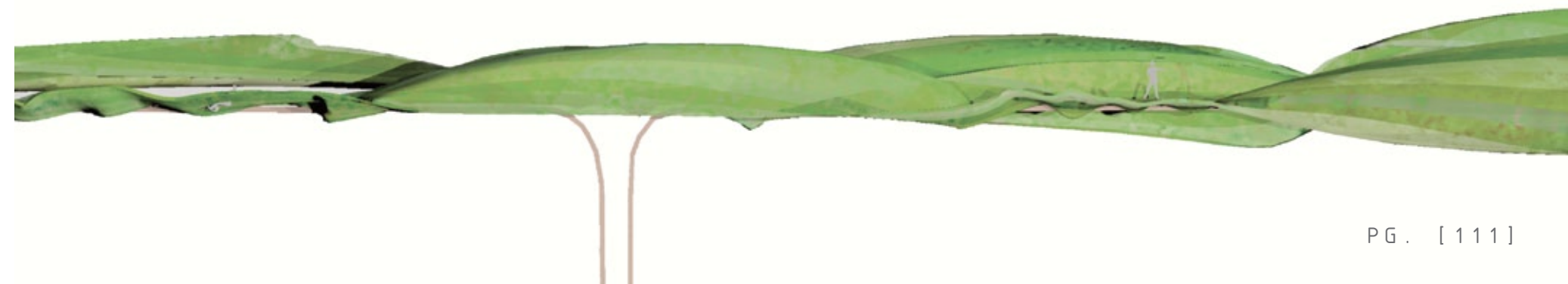




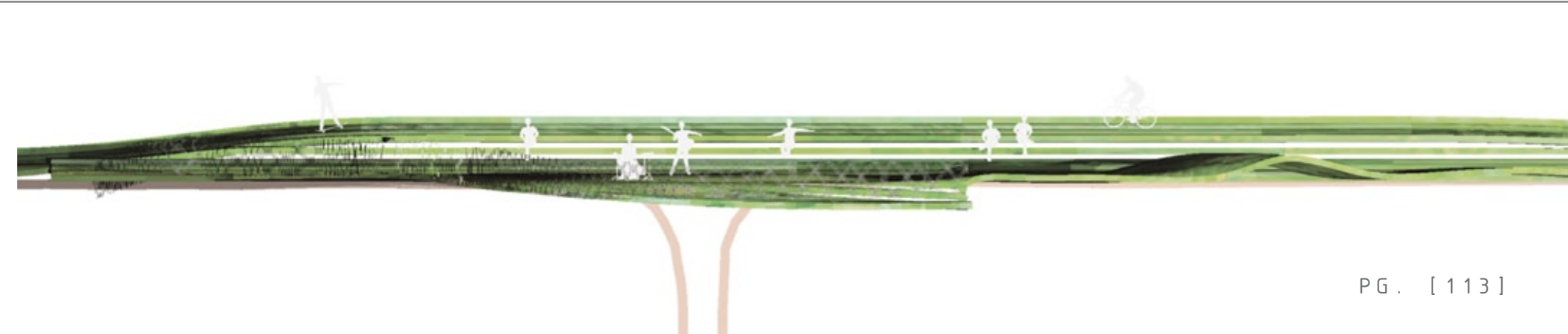
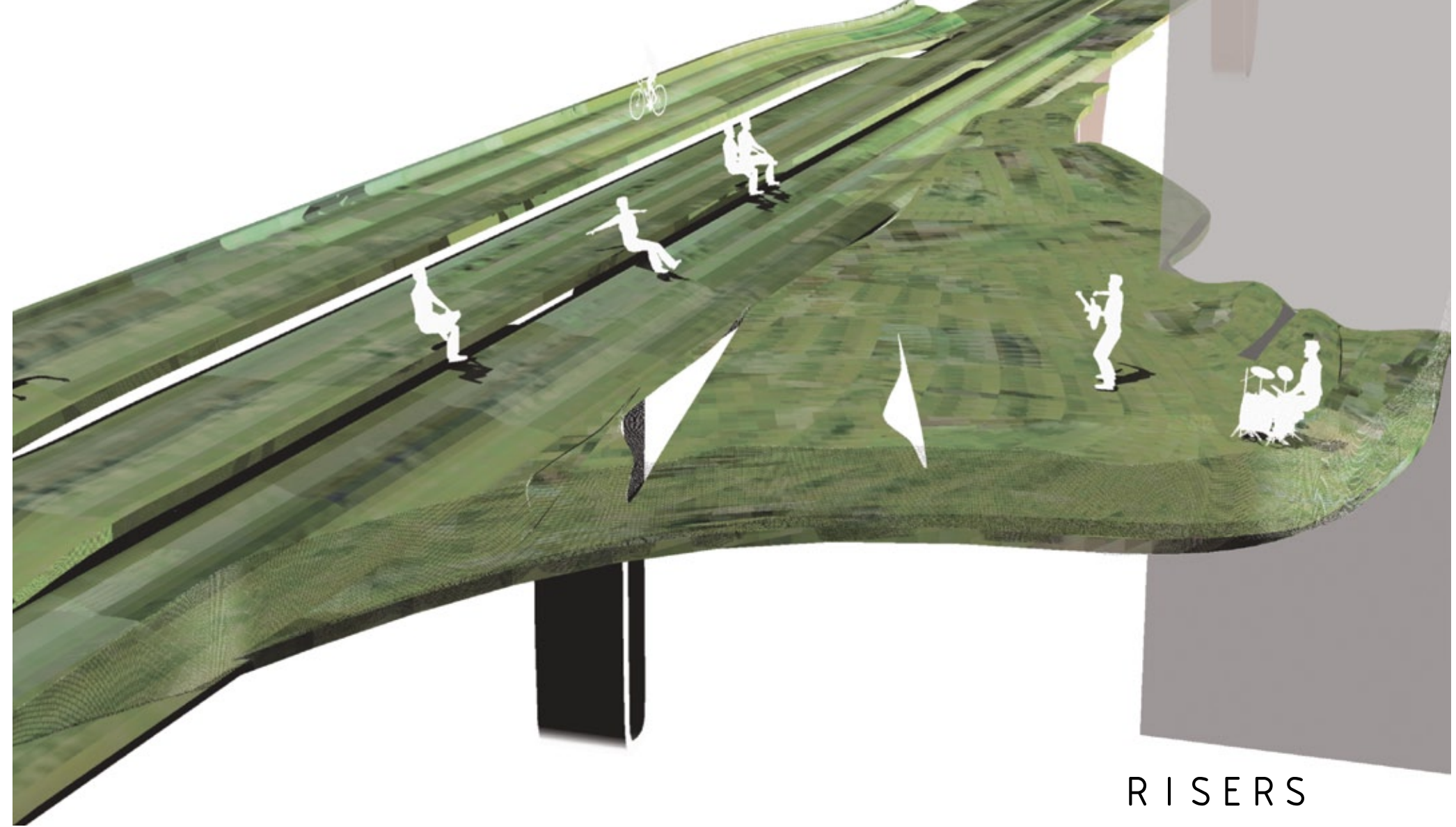
clone



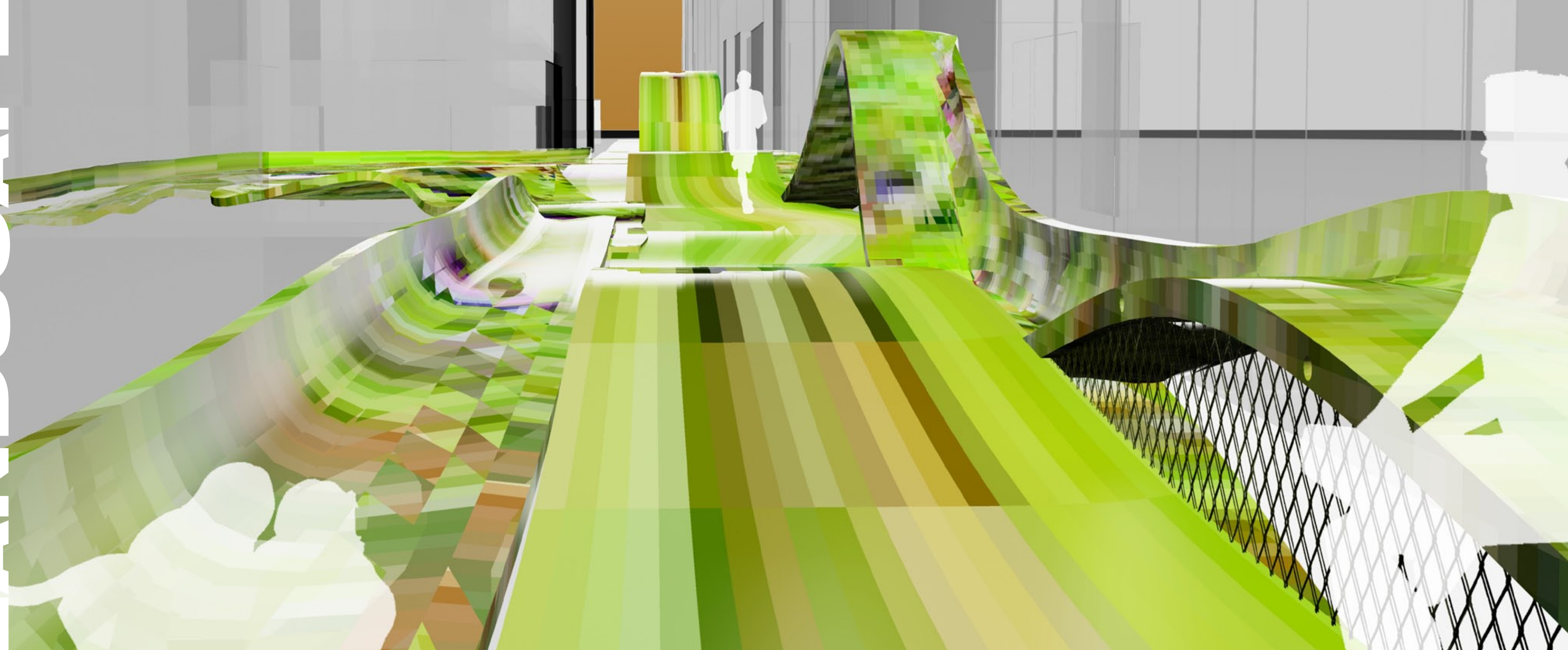
COCOONS



PG. [111]



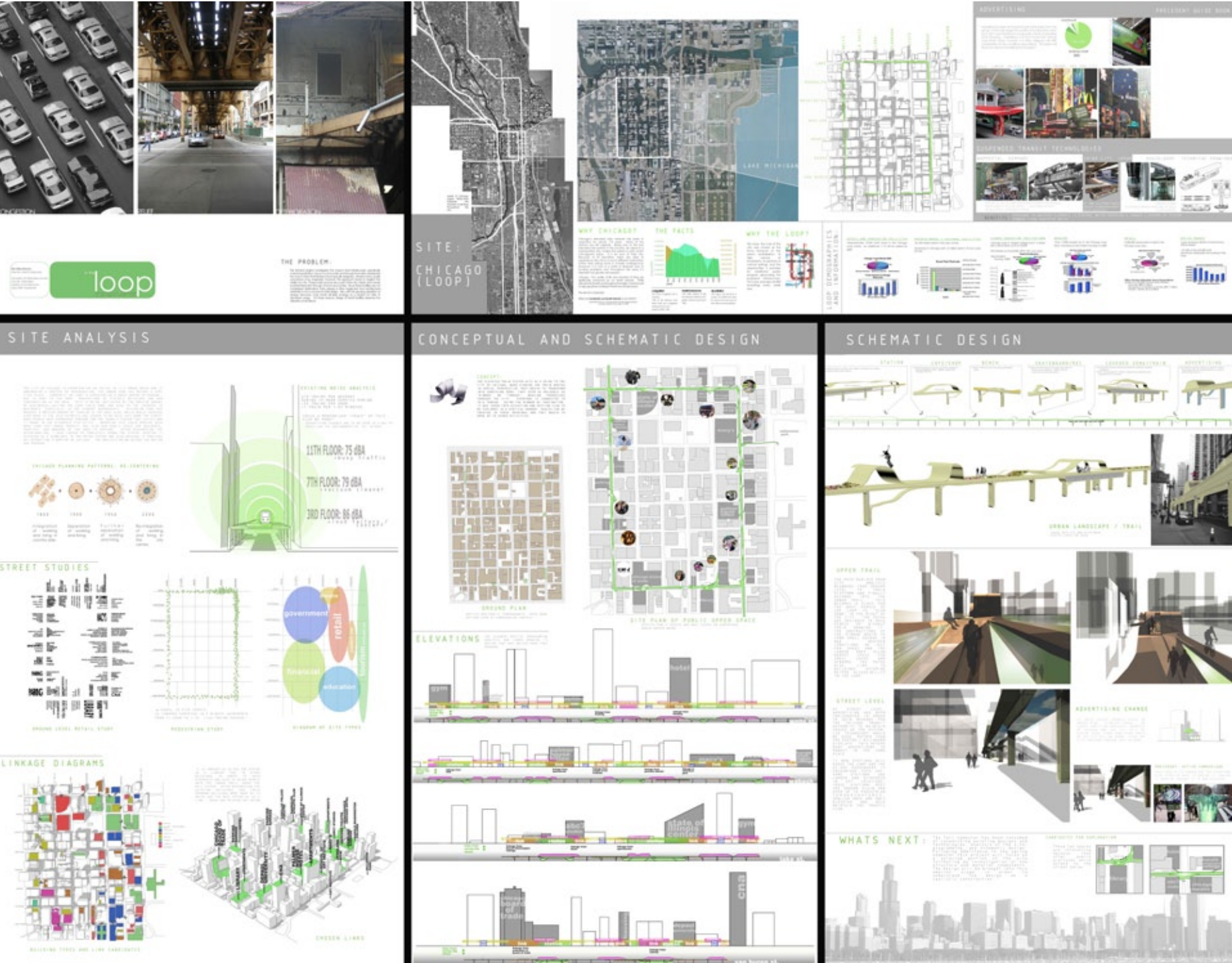
IN-HABITABLE LANDSCAPE



DIGITAL INFO-SCAPE



FIRST SEMESTER FACULTY REVIEW BOARDS



SECOND SEMESTER FINAL REVIEW BOARDS



Barley, Nick, ed. 2000. *Breathing Cities; The Architecture of Movement*. Basel: Birkhauser-Publishers for Architecture

Brownell, Blaine, ed. 2006. *Transmaterial; A Catalog of Materials that Redefine Our Physical Environment*. New York: Princeton Architectural Press.

Cerver, Francisco Asensio. The Architecture of Stations and Terminals. Hearst Books International. New York, NY. 1997.

Chicago-L Organization. www.chicago-l.org/index.html. 2006

Collis, Hugh. Transport, Engineering and Architecture. Lawrence King Publishing Ltd. London, UK. 2003.

Cook, Peter, ed. 1972. *Archigram*. London: Studio Vista Publishers

Corner, James, ed. 1999. *Recovering Landscape; Essays in Contemporary Landscape Architecture*. New York City: Princeton Architectural Press.

Friend of the Highline. New York, NY. www.thehighline.org. 2007

Griffin, Kenneth W. Building Type Basics for Transit Facilities. John Wiley & Sons, Inc. Hoboken, NJ. 2004.

Lave, Charles A. Urban Transit. Pacific Institute for Public Policy Research. 1985.

Mark 1: Another Architecture: Let's Build Trees! Amsterdam: Frame Publishers, 2000s.

Moffat, Bruce. *The 'L': The Development of Chicago's Rapid Transit System, 1888-1932*. Chicago: Central Electric Railfan's Association.

Project for Public Spaces. www.pps.org. 2006

Reconnecting America. www.reconnectingamerica.org. 2006

Takeyama, Minoru. Transportation Facilities. Tokyo, Japan. 1997.

Transportation Spaces. The Images Publishing Group Pty Ltd. Melbourne, Australia. 1999.



Somehow I have finally made it to this point. It has taken me seven years to finally be able to write this acknowledgment. It has been worth the wait though. I want to firstly thank my family for all of their support, both financially and motivationally. Dad, you can finally retire. I would also like to thank all of my classmates / friends. Much of the learning process within studio happened within our interactions and I have gained so much from so many of you.

Throughout the Design Thesis, I have gained support and knowledge from many of the faculty within my reviews. These include: Jeff Day, Hyun Tae Jung, Camilla Rice, Keith Sawyers, and Tim Hemsath. Thank you all for showing an interest in my project and for providing me with criticisms to guide me forward in my project.

And lastly I would like to show my great appreciation for my mentor, Martin Despang. Your guidance was so beneficial to the final products of my design project. Danke für alle Ihre Hilfe. Sie sind ein wundervoller Lehrer mit großem Mitleid für Ihre Kursteilnehmer. Hoffentlich können wir uns in Portugal bei der Konferenz zusammen darstellen.